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TUESDAY 24 OCTOBER 1978 • JEDDAH • 22 DHUL QADDA 1398 A.H.

SIXTEEN PAGES — ONE RIYAL

Fahd receives message from Qaddafi

TAIF, Oct. 23 (SPA) — Crown Prince Fahd Monday received a message from President Muammar Qaddafi of Libya during a meeting he held with the Libyan ambassador to Saudi Arabia.

The crown prince also received North Yemen's Foreign Minister Abdullah Asnag. The meeting was devoted to a review of bilateral relations.

Earlier Sunday, Prince Fahd received in audience Egyptian Vice President Sayed Marie, and discussed bilateral relations and latest developments in the Middle East.

In another meeting, Prince Fahd Monday received the Ulema and Sheikhs as is customary every Monday.

Pilgrimage master plan approved

TAIF, Oct. 23 (SPA) — A master plan to cater to this year's pilgrims has been approved by the pilgrims security committee headed by Interior Minister Prince Naif.

The committee which met Monday has taken into account all issues that would be required to make the pilgrimage safe, comfortable and simple.

Present at the meeting were Prince Ahmad, deputy interior minister and General Fayez Al-Awli, director of public security.

Gen. Awli said after the meeting that the committee had made adequate preparations for the expected increase in the number of pilgrims for this year's season.

So far 223,277 pilgrims have arrived in the Kingdom, 69,715 more than during the corresponding period of last year.



CONSULTATIONS: Crown Prince Fahd during his meeting Sunday with Egyptian presidential advisor Sayed Marie.

'Technical questions'

Egypt sends back draft pact

CAIRO, Oct. 23 (Agencies) — Egypt has sent back the final draft of a peace treaty with Israel for further study because of what Prime Minister Mustapha Khalil described as "technical" questions over linking the treaty to the future of the West Bank.

The prime minister said there were not fundamental problems standing in the way of a peace treaty, but said Egypt wanted to raise some technical observations.

"We have not rejected the draft of a peace treaty with Israel, but we have some observations which are technical in nature," the official Middle East News Agency quoted him as saying.

Khalil said the observations dealt with the linkage between the peace treaty and the future of the West Bank and the Gaza Strip.

Khalil declined to define points of difference or elaborate on the nature of the observations, but said there were no fundamental problems that could not be solved.

President Anwar Sadat has described the linkage question as the crucial issue in the present talks.

Egypt favors the creation of a Palestinian entity com-

prising the West Bank and Gaza which would be closely linked to Jordan.

Well-informed sources said that Egypt, sensitive over accusations that it is making a separate peace with Israel, was anxious to show the Arab world it was respecting its commitment to a solution of the Palestinian question.

In Jerusalem the Israeli cabinet gathered for a special session to hear a detailed report by Foreign Minister Moshe Dayan on the draft treaty, which he believes would bring the two countries close to ending 30 years of war.

Informed sources said Premier Menachem Begin's cabinet was also likely to suggest further examination of the nine-article draft before approving it.

President Sadat's action did not seem to surprise Israelis close to the government.

They pointed out that when Dayan returned from Washington Sunday with his fellow negotiator, Defense Minister Ezer Weizman, he had said the cabinet could either accept the draft outright or call for modifications.

A total and immediate acceptance of the document was improbable by a cabinet whose members include right-wing

nationalists fearful that Israel was giving away too much in the cause of peace.

Dayan, who returns to Washington with Weizman Wednesday, has already conceded that agreement with the Egyptians is still lacking on certain unspecified points.

An American spokesman said in Washington Sunday that the negotiators had not yet reconciled their views on three annexes to the draft. No information was available from Israeli officials on what the annexes covered.

Prominent members of Begin's ruling Likud alliance have expressed deep concern that the document would be linked too closely to a future Israeli withdrawal from the West Bank and the Gaza Strip.

The word "linkage" was certain to be thrown time and again at Dayan and Weizman during their cabinet interrogation. Opponents of the pact have seized on Sunday's U.S. statement that the two negotiating teams have resolved the issue to their own satisfaction.

The foreign minister, however, stressed on his arrival home Sunday that the draft "stands on its own feet" and was not conditional on any

(Continued on back page)

Prince Saud announces

Kingdom to attend summit

MANAMA, Oct. 23 (Agencies) — Saudi Arabia would attend an Arab summit conference planned for Baghdad on November 2, Foreign Minister Prince Saud Al-Faisal said here Monday.

Prince Saud was in Bahrain on a Gulf tour to discuss Middle East developments and

prepare for the Arab heads of state meeting and the foreign ministers conference which would be held, also in Baghdad, on Oct. 30.

He delivered a message from Crown Prince Fahd to Ruler Sheikh Issa bin Salman Al-Khalifa.

Prince Saud, had already

visited Kuwait and later visited Qatar, where he conveyed a similar message to the Ruler, Sheikh Khalifa Bin Ahmad Al-Thani. He then flew to Abu Dhabi.

The Gulf News Agency quoted Prince Saud as saying "Saudi Arabia is coordinating with sister Arab states for the success of the summit conference and achieving positive results to tackle challenges facing the Arab nation at this crucial stage."

The summit conference has been proposed by Iraq to work out a common strategy following the Camp David accords.

Earlier Monday, the chief of Jordan's Royal Cabinet said Jordan and Saudi Arabia agree that the proposed Arab sum-

mit should go ahead as scheduled on November 2.

Sharif Abdul Hamid Sharaf, who Sunday delivered a message from King Hussein to Crown Prince Fahd, said the two countries also agreed that the conference should adopt positive results, which would serve the interests of Arab states.

Meanwhile, Sudanese President Jaafar Numeiri said his country is willing to attend the upcoming Arab summit provided no conditions or pre-set resolutions are attached.

The Saudi and Sudanese agreement meant that all Arab states except Egypt will attend the summit, according to Iraqi officials. Egypt said it only

(Continued on back page)

Cabinet to reorganize award of scholarships

TAIF, Oct. 23 (SPA) — Crown Prince Fahd Monday instructed the Cabinet to give special attention to organizing the dispatch of students abroad.

He told the ministers: "Our sons on scholarship missions abroad are a group very precious to us and for which we are responsible. We must see to it that their mission is studied beforehand to achieve the expected results in a moral atmosphere compatible with our religion and our traditions."

He said that sound basis for the selection of such students should be defined and that

scholarships should be confined to post-graduate students.

"Students must spend their secondary school stage in their homeland to deepen their civic sense," the prince added.

At a cabinet session he chaired, Prince Fahd said that "for the students to remain in the Kingdom during the secondary stage would arm them with enough faith to meet the challenge of the changing moral values abroad."

After the meeting Information Minister Dr. Muhammad Abdo Yamani said that in the light of a report by the minister of Municipal and rural af-

(Continued on back page)

Assad starts visit to Baghdad today

DAMASCUS, Oct. 23 (Agencies) — Syrian President Hafez Assad will pay a working visit to Baghdad Tuesday at the head of a government delegation, it was officially announced Monday. It will be his first visit to Iraq in five years.

Official sources said the president would discuss the Middle East conflict and open a new chapter in relations between Syria and Iraq.

The two countries are ruled by rival factions of the Arab Baath Socialist Party which have been divided by deep differences on how to resolve the Middle East crisis.

President Assad will be accompanied by Deputy Premier and Foreign Minister Abdul Halim Khaddam, Deputy Premier for Economic Affairs Jamil Shayya, Deputy Premier for Social Services Fahmi Yousef and Information Minister Ahmad Iskandar.

Syria Sunday night announced it had reopened its borders with Iraq, closed nearly a year ago, and resumed air links with its neighboring state.

The borders were closed last

November following accusations that Syrian nationals had been arrested and tortured and the discovery of what Damascus said were sabotage networks in Syria backed by the Iraqi government.

Iraq will next month host to an Arab summit called to counter the Camp David agreements between Egypt and Israel.

Syrian sources said Assad would be discussing with Iraqi leaders "the possibilities of joint confrontation, as part of the general Arab effort, of the increasing Zionist onslaught designed to impose surrender on the Arab nation...."

(Continued on back page)

Iran govt. removes police from campuses

TEHRAN, Oct. 23 (Agencies) — The Iranian government Monday ordered police guards removed from universities, the focal points of protests against the Shah, and said students would be allowed to stage political demonstrations.

Less than 24 hours after his appointment, Science and Higher Education Minister Abdul-fazl Qazi Shariat-Panahi told journalists there would be no interference by non-academic authorities in university affairs.

Police would be removed from the nation's 21 university campuses and students would be allowed to stage political demonstrations provided they were within the law.

Shariat-Panahi also said a controversial bill on the status of universities, which has met strong criticism from academics, would be withdrawn from parliament and a new bill prepared by university authorities.

His policy was in line with the tactics of Premier Shariat-Panahi's government of meeting

ing widespread discontent by conceding to the demands of protesters.

But it appeared unlikely to end chaos in the universities, where classes have been disrupted by political protest for most of this year.

Several thousand students shouting slogans against the Shah and demanding an end to martial law and the release

(Continued on back page)

Numeiri blames Soviets for rift with Addis


KHARTOUM, Oct. 23 (R) — Sudanese President Jaafar Numeiri said Monday that armed Soviet intervention in the Horn of Africa was the cause of tension between Sudan and Ethiopia, the Middle East News Agency (MENA) reported.

President Numeiri said in an interview with the Sudan newspaper "Al Ayam," broadcast on Omdurman Radio Monday, that relations would be normal if the Soviet Union halted interference in the area.

He rejected the idea that some African states had requested Soviet intervention.

Numeiri said he expected that the African mediation committee between the Sudan and Ethiopia might call for a meeting between himself and President Mengistu Haile Mariam of Ethiopia on bilateral relations and Eritrea.

He said he would then present Sudanese suggestions to the Ethiopian president, for solving the dispute in Eritrea, where guerrillas are fighting Ethiopian government troops for independence.



DETAILS OF CARGO HANDLED IN DAMMAM PORT

WEEK NO. 45
Period 14.10.78-20.10.78

CARGO TYPE	TONNES	TONNES
1. FOODSTUFFS		
Flour	1607	
Wheat	5524	
Maize		
Durra		
Rice	1882	
Sugar	2857	
Other Foods	8530	
Fruit		
Chicken	570	
Meat	587	
Eggs		
	Total	21557
2. CONSTRUCTION MATS.		
Cement	77,339	
Steel	58,117	
Timber	5,055	
General	23,745	
	Total	164,256
3. VEHICLES		
No of Units (2825)	29,096	Total
4. LIVESTOCK HEADS		
		Total
5. GENERAL		
	85972	Total
	Grand Total	300,881
TOTAL DISCHARGED		
Tonnage 300,881	Tonnes	
Number of Vehicles 2825	Units	
No. of Livestock	Heads	

Returns home Saunders concludes Mideast discussions

TEL AVIV, Oct. 23 (AP) — American diplomat Harold Saunders returned home Monday after a Mideast tour that included stops in Saudi Arabia, Jordan and Israel and talks with Palestinian leaders from Israeli-occupied territories.

Saunders, undersecretary of state for the Near East, failed to win support for the Camp David accords from the Arab leaders, but "continued the dialogue and explanations" of the Israel-Egypt agreement, a U.S. official said.

During his four days in Israel, Saunders met Prime Minister Menachem Begin and other Israeli officials to discuss the Washington peace talks and President Jimmy Carter's replies to questions about the Camp David accords posed by Jordan's King Hussein.

But he also took time to

meet Palestinian notables to seek support for the autonomy plan outlined in the accords for the West Bank of Jordan and the Gaza Strip.

On Friday night Saunders met about a dozen Palestinian leaders in East Jerusalem, who told him the autonomy plan falls short of their demand for an independent Palestinian state. Saunders toured the West Bank town of Hebron on Saturday and traveled to Gaza on Sunday to meet Gaza Mayor Rashad Shawa, who also has rejected the accords.

Deputy Prime Minister Yigal Yadin reportedly criticized the timing of Saunders' meetings with Palestinians, which highlighted the obstacles facing the autonomy plan as Israel and Egypt were striving to conclude a peace treaty in Washington.


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COMMODITY	QUANTITY DISCHARGED IN F.T.
1. FOODSTUFFS:	
Flour/Wheat	08,388
Maize	
Rice	03,139
Sugar	05,065
Tea	00,308
Various Foodstuffs	40,952
Fruit	17,999
Poultry	04,171
Meat	00,708
Eggs	
	80,730
2. CONSTRUCTION MATERIALS	
Cement	41,531
Steel	08,731
Timber	14,733
General Construction Materials	68,256
	133,251
3. VEHICLES	
Number of Vehicles	04,105
Number of Tonnes	62,057
4. LIVESTOCK	
Head of Livestock	48,465
5. GENERAL CARGO	
	80,930
TOTAL DISCHARGED	
A) 356,968	Tonnes Cargo
B) 004,105	Vehicles (In Number)
C) 048,465	Head of Livestock

With Dr. Yamani

Mauritania leader visits Prophet's Mosque

MEDINA, Oct. 23 (SPA) — Mauritanian President Mustapha Ould Salek visited the Holy Prophet's Mosque here Monday.

Abdullah meets U.S. ambassador

JEDDAH, Oct. 23 (SPA) — Prince Abdullah, second deputy premier and commander of the National Guard, received United States Ambassador John West here Monday.

Earlier, Medina Governor Prince Abdul Mohsen gave a luncheon in honor of Ould Salek and his staff.

On departure from Jeddah in the morning, the Mauritanian leader was seen off by Governor of Mecca Prince Fawaz, Jeddah District Commander Sheikh Abdul Rahman Al-Sudani, Commander of the

Western Province Gen. Mansour Al-Shu'abi and other senior officials and high-ranking officers.

Ould Salek, accompanied by Dr. Yamani, went to Mecca Sunday evening to perform the Umrah.

Awfi to tour Medina

JEDDAH, Oct. 23 (SPA) — Gen. Fawaz Al-Awfi, director of public security, leaves for Medina Tuesday to inspect security preparations for the

Umrah and safety of this year's pilgrims.

During his two-day visit, Gen. Awfi will be accompanied by commanders and senior officers of the Hajj Security Force, who will inspect public facilities and the main pilgrim routes to and from Medina.

Gen. Awfi undertook a similar tour of the pilgrimage sites near Mecca last Saturday.

Meanwhile, Dr. Abbas Hamza Al-Marzouqi, director general of health in the Western Province, has stated that 130 health centers have been opened at the pilgrimage sites to serve pilgrims. He added that the general hospitals in Arafat, Mena and Shisha (in Mecca) have been provided with adequate medical equipment and staff to look after the health of pilgrims and local residents.

The health centers functioning on the Medina-Jeddah highway have been reinforced with four special pilgrimage units.

Jeddah braces for pilgrimage mail explosion

JEDDAH, Oct. 23 — The Central Post Office in downtown Jeddah has said it is competent to cope with the expected large influx of mail for persons performing the pilgrimage this year.

Ali Ismail, regional director of posts, told "Al-Medina" that the main office, its branches at the air and sea pilgrim terminals, and in other areas of the Western Province are now fully equipped to ensure prompt mail service for the pilgrims and to keep up the regular service.

He added that a committee has been appointed to hire men from Egypt, Sudan and Jordan to reinforce the present staff over the pilgrimage.

Ismail said that the directorate will soon move to new headquarters in Ruwais where new equipment is being installed in time for next year's



UMRAH: Mauritanian President Muhammad Ould Salek (second from left) and his delegation being led by the Imam at the Holy Prophet's Mosque in Medina Monday.

Ministry outlaws smoking in schools

JEDDAH, Oct. 23 — Smoking has been prohibited in schools and youth hostels.

According to "Al-Medina", the ministry said that teaching staff and others working at the youth hostels have been asked not to smoke during working hours, to set an example to young people.

The circular impressed upon children that they should not smoke at school, during sports or any other school activities, and said that students must be educated about the hazards of smoking.

For misconduct

State housing fund cancels 2,200 loans

JEDDAH, Oct. 23 — A total of 2,200 cheap housing loans have been cancelled, according to statistics published Sunday by the Real Estate Development Fund because borrowers had contravened regulations and general instructions.

"Al-Jazirah" newspaper Monday quoted the fund as saying that it would continue to withdraw approval from any borrower not respecting the fund's terms and regulations.

4 die in Jeddah motor accidents

JEDDAH, Oct. 23 — Four persons were killed and ten injured in motor accidents in Jeddah Sunday, according to "Al-Bilad" newspaper.

A couple and their baby boy were killed near the cement factory at Kilo 14, Medina Road when their vehicle collided with a truck. The three died before a rescue party from the Civil Defense Department could free them from the car.

It was also reported that a man of 50 was killed when his car overturned on Mecca Road.

In the village of Riyadh Al-Khobara in Qasim, more than 1,000 loan beneficiaries have been granted plots of land on which to construct houses, town Governor Sheikh Hussein Sultan told the newspaper.

Of these, over half had begun construction, Sultan said.

He added that, in cooperation with local farmers, the governorate has expanded the cultivable areas near the Wadi Rummah outside the town.

The farmers have received loans on easy terms from the government through the Saudi Agricultural Credit Bank and were undertaking the exploitation of the reclaimed land.

Local briefs

●JEDDAH, (SPA) — Governor of Mecca Prince Fawaz received the ambassadors of North Yemen, India and Sudan separately here Monday.

●JEDDAH — An agricultural research center will be set up in Biljirshi in Baha soon for experiments to determine suitable crops for the southern province, Prince Khaled Al-Faisal, governor of Asir said Monday in an interview with "Al-Bilad" newspaper.

●RIYADH (SPA) — Prince Fahd ibn Sultan, acting director general for youth welfare, Monday received a visiting delegation led by the director of Japan's National Museum of

Folk Arts. The delegation arrived in the Kingdom last week in the course of a Mid-east tour to seek cultural exchanges.

Health agency lets contracts

DAMMAM, Oct. 23 (SPA) — A SR9,500,000 contract was signed at the headquarters of the Eastern Province Environmental Health Committee Monday for the installation of a sewage network and mechanical purification units in Qadhih village over a six-month period.

Another SR611,000 contract was signed for the building of a reservoir and a water network in Omumiyah district, within eight months.

Prince Majed, minister of municipal and rural affairs, also Monday awarded contracts worth over SR 15 million for the execution of 10 municipal projects.

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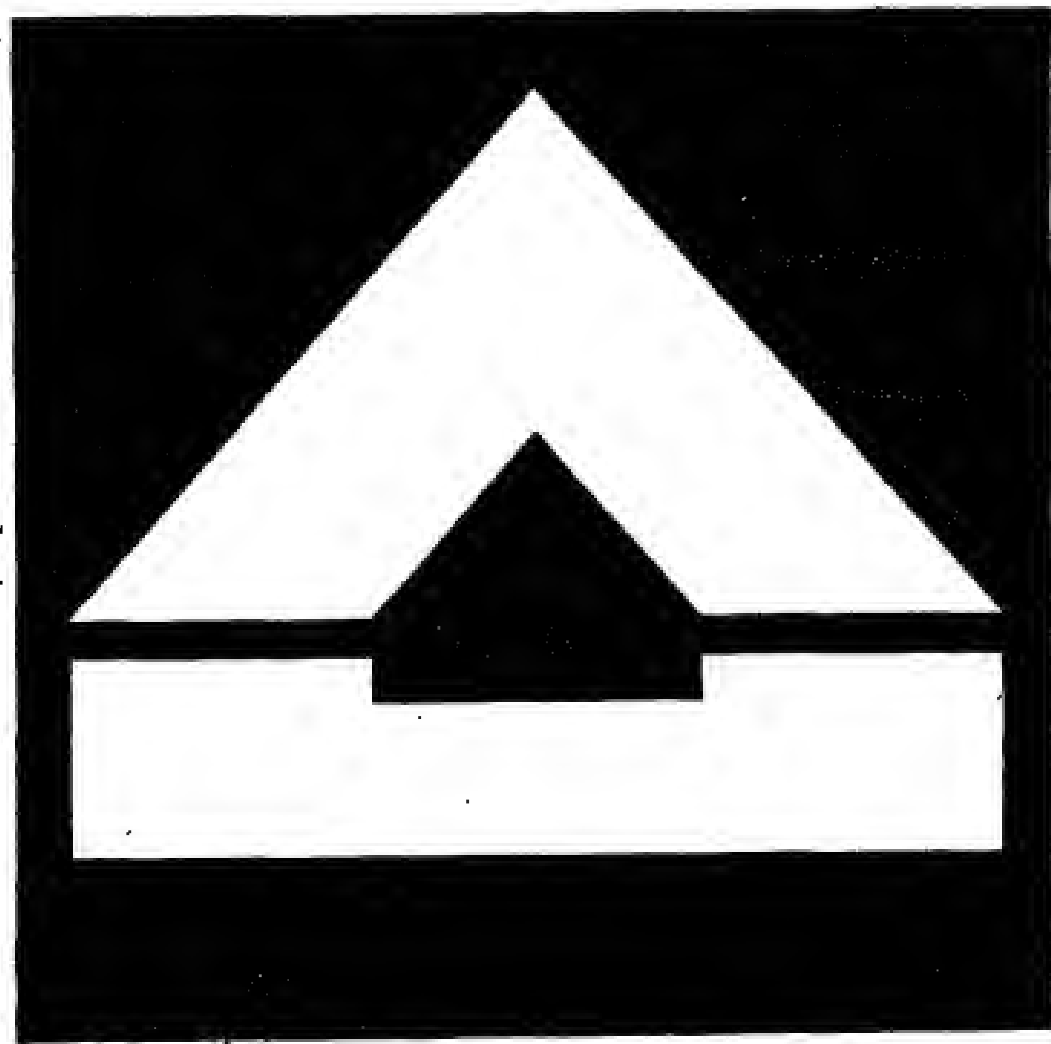
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Ahmad Abdullah installed in Moroni

MORONI, Oct. 23 (AP) — Veteran nationalist leader Ahmad Abdullah Monday formally proclaimed president of the Federal Islamic Republic of the Comoros, a group of Indian Ocean islands between Madagascar and the East African coast.

Abdullah, a moderate, was the only candidate for the post under a new constitution approved by 99 per cent of the electorate on Oct. 1. He took power in the former French colony on May 13, in a military coup organized by French mercenary Col. Bob Denard.

Will urge American intervention

Help save Bhutto, son to ask Waldheim

UNITED NATIONS, Oct. 23 (AP) — The 24-year-old son of ex-Premier Zulfikar Ali Bhutto of Pakistan was expected at the United Nations Monday to seek help in saving his father from execution by the military government.

Mir Murtaza Bhutto of London, an Oxford University foreign policy student, told the Associated Press on the telephone from his New York hotel that he planned to deliver a letter on the subject to Secretary-General Kurt Waldheim.

But he said, "We have really come here to see if we can lobby for support from the government of the United States."

He would fly to Washington Monday night even though he had no appointment yet with anyone in the administration.

"The United States could bring about a great positive change if the president of the United States did something," he declared. "We (in Pakistan)



Ali Bhutto receive quite a lot of aid from the United States." He was in Washington in April but "there was no response" and "I think if they have done anything, it's been done in private."

His father, 50, was over-

thrown on July 5, 1977. He is in jail in Rawalpindi waiting for the Supreme Court to rule on his appeal from a death sentence the high court in Lahore passed last March 18 after he was convicted of murder. He says the charge was trumped up.

Young Bhutto said he had a recent seven-page letter for Waldheim from his father, largely about prison conditions. About two and a half weeks ago, he had telegraphed Waldheim a two-page message from his father smuggled out of Pakistan about Sept. 20.

The telegram bore the type-written signature Zulfikar Ali Bhutto and, as the son described it, said:

"A false murder case has been fabricated against me in which I have been in solitary confinement for over a year and in a miserable death cell for over six months in appalling conditions."

"I am not receiving proper medical treatment although I

am urgently in need of it. . . . Without exaggeration, I tell you, Mr. secretary-general, I have been treated worse than a Jew would be treated by Nazis or the victims of apartheid in South Africa."

"I would request you to circulate this message to the bonair diplomats at the current session of the General Assembly."

"Relevant world leaders are aware of the documentary evidence as to why my life hangs in the balance. . . . my blood if it spills will surely stain their hands and in history they will owe me a debt of blood."

Bhutto claimed credit in the message for "equipping an Islamic state with nuclear capability."

Waldheim issued a public appeal for the life for Bhutto last March.

Pindi press rolls again after strike

RAWALPINDI, Oct. 23 (R) — Nine opposition newspapers have resumed publication after a three-day strike to protest against censorship imposed by Pakistan's military rulers.

The Urdu-language daily "Musawat," the organ of ousted Premier Zulfikar Ali Bhutto's Pakistan People's Party, appeared Monday with blank spaces.

A joint statement by 10 editors of pro-Bhutto papers said they were unable to publish their newspapers in the usual style.

The editors, who had earlier threatened to close down their newspapers, said they had resumed publication in the hope that the government would lift censorship.

The government had accused the newspapers of irresponsible reporting and threatening peace and order in the country.

Syria hands over Turkish convict; 3 died in escape

GAZIANTEP, Turkey, Oct. 23 (R) — A prisoner during whose escape from jail last month three guards died has been captured in Syria and returned to this southeastern province, the provincial governor said Monday.

Cemal Dagdeviren, a leftist militant imprisoned on charges of attempted killing and wounding, was handed over last Thursday.

Three other prisoners were freed in a prison raid apparently organized by their friends.

The whereabouts of the other three escapees were not known.

Arabs allocated 1,700 university places in Iraq

BAGHDAD, Oct. 23 (R) — Iraq has allocated 1,700 places to students from Arab countries at Iraqi universities and other educational institutes this year, the Iraq news agency reported.



PEREGRINE: This hooded Peregrine falcon is used in the United Arab Emirates for hunting hares and bustards.

Mubarak takes Shah Sadat message

TEHRAN, Oct. 23 (R) — Egyptian Vice-President Hosni Mubarak Monday presented a message to the Shah from President Sadat believed to deal with the Camp David Middle East peace agreements and last week's Washington agreement.

Iran has welcomed any moves towards Middle East peace, but has not publicly declared its support for the agreements.

Mubarak later left for Bonn, next step on a tour of European capitals to discuss the Middle East situation.

Sadat orders troops to assist civil improvement

CAIRO, Oct. 23 (R) — President Sadat has ordered the Egyptian armed forces to help civilian authorities deal with problems in the country's public services.

The Middle East News Agency said Sunday that Sadat had told Chief-of-Staff Maj.-Gen. Ahmad Badawi that the armed forces should help Prime Minister Mustapha Khalil's new government overcome difficulties in the public services.

Khalil's government has said it wants to improve the country's transport, sewerage and telephone systems.

Washington to resume aid to Pakistani development

ISLAMABAD, Oct. 23 (AP)

The U.S. government has decided to resume economic assistance for development projects in Pakistan, official sources say.

Project assistance to Pakistan was suspended in 1977, after Islamabad's insistence on going ahead with purchase of

a nuclear reprocessing plant. Washington had opposed that in line with its policy to check the spread of nuclear weapons.

France canceled sale of the plant to Pakistan in August, which led to resumption of the American economic assistance for projects.

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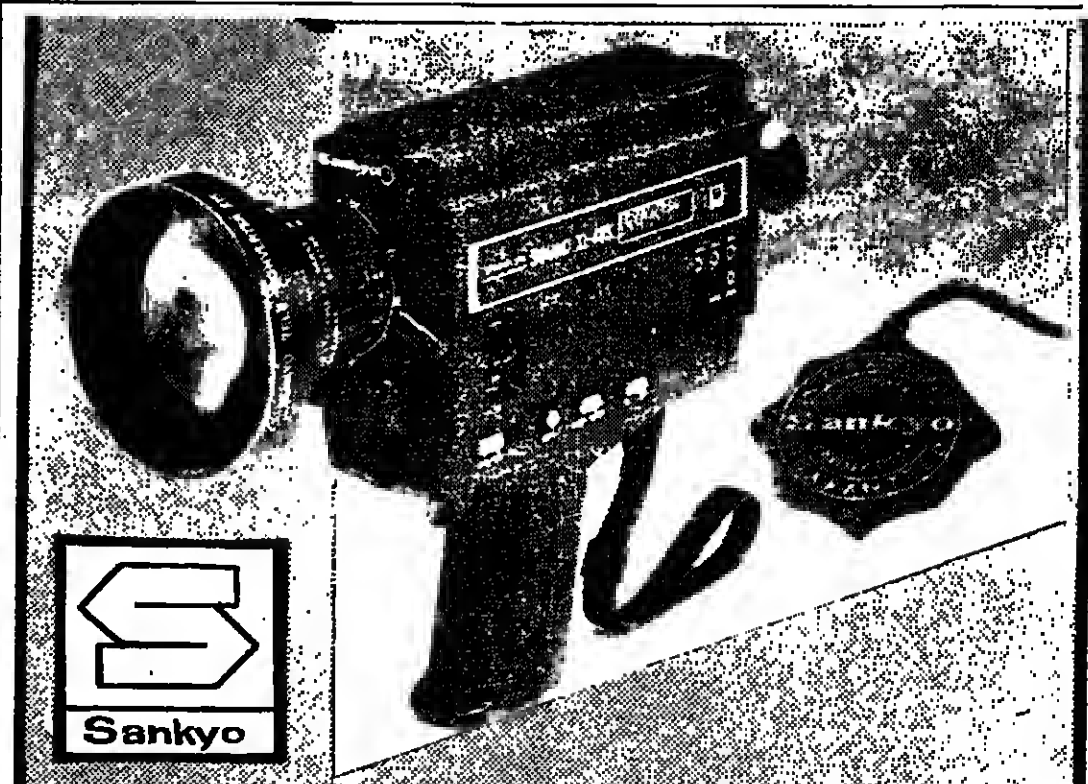
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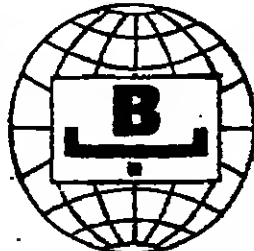
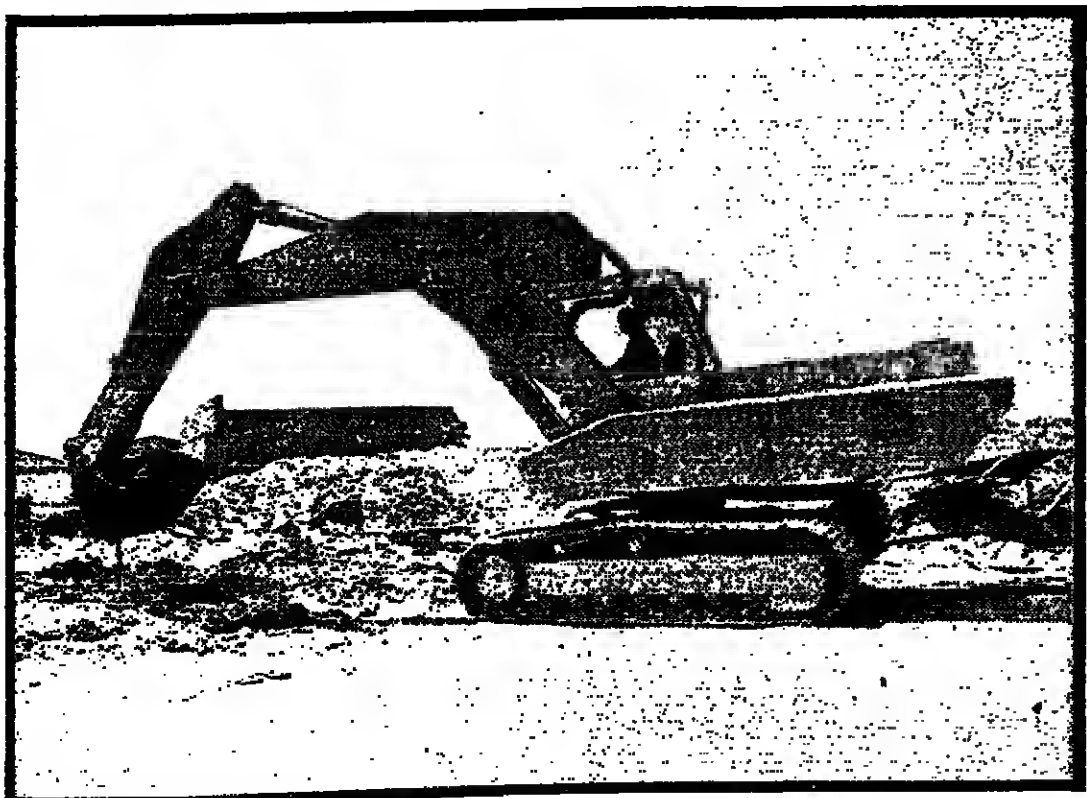
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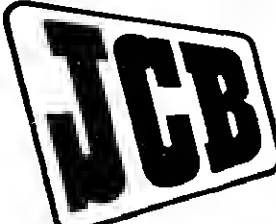
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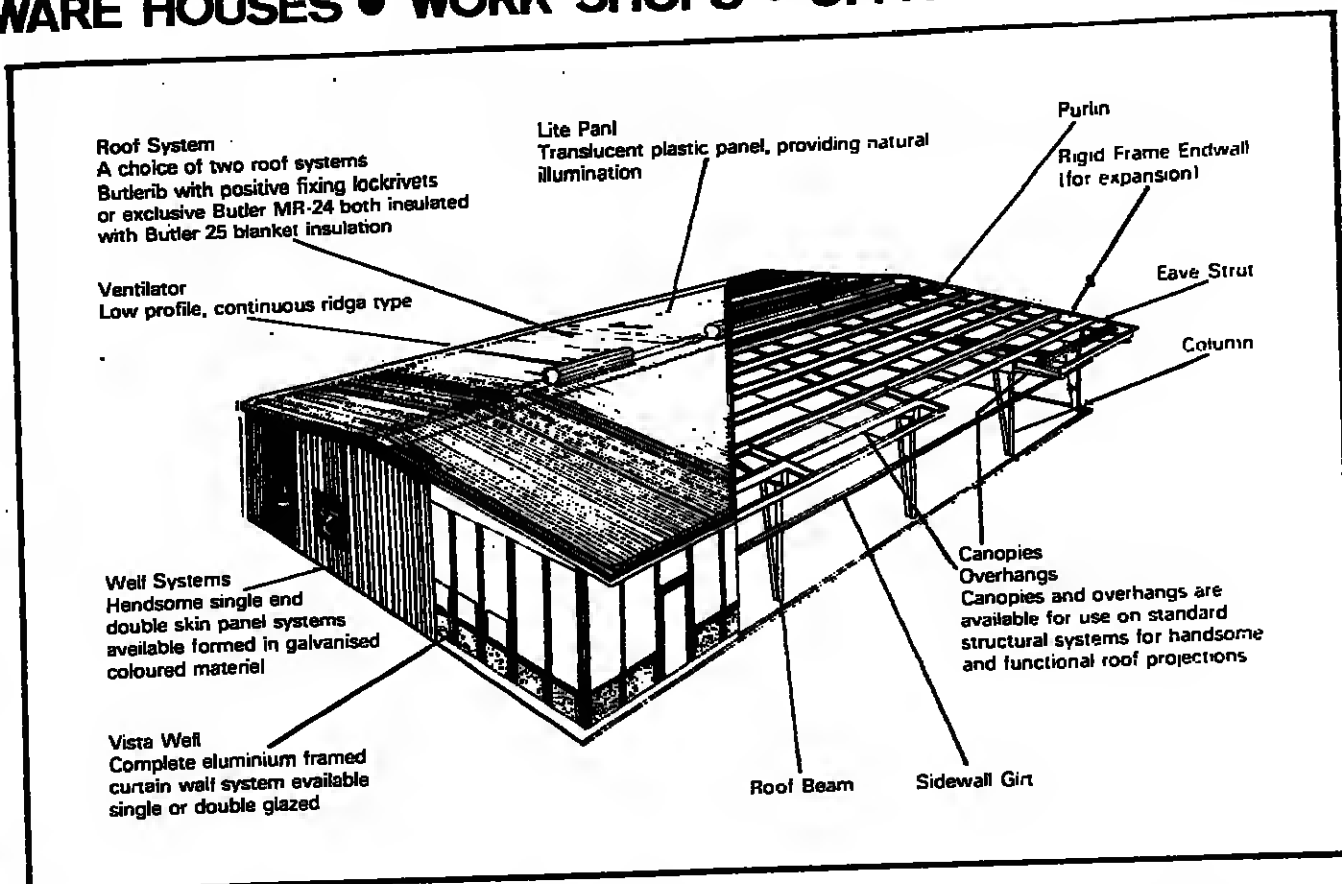


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Asia's dominant powers sign Peace and Friendship Treaty

TOKYO, Oct. 23 (R)—Asia's two most powerful nations, China and Japan, Monday embarked on a new era in relations which will bind them closer together and lead to greater cooperation in all but the military field.

Chinese Vice-Premier Teng Hsiao-ping and Japanese Prime Minister Takeo Fukuda, watched a closely guarded ceremony in Fukuda's official residence as the Chinese and Japanese foreign ministers, Huang Hua and Sunao Sonoda, exchanged the instruments of ratification of the ten-year Peace and Friendship Treaty.

No survivors found in ship off Maryland

ST. INIGOE, Maryland, Oct. 23 (AP)—One body was found and hopes dimmed for 10 other missing crewmen Sunday as U.S. Navy and Coast Guard divers penetrated the gashed hull of a Coast Guard cutter that collided with a freighter and sank in the Chesapeake Bay.

A Coast Guard spokesman said the body was discovered just outside the sunken cutter Cuyahoga Sunday morning.

The dead and missing men, including an Indonesian naval officer, were among 29 aboard the 51-year-old Cuyahoga when it collided with a 5-1-foot Argentina coal freighter Friday night and sank almost immediately off Smith Point about four miles from Reedville, near the Maryland-Virginia border.

The cutter, which was on a training mission, sank just three or four minutes after colliding with the Santa Cruz II.

The Coast Guard had hoped some of the men might have survived in air pockets in the damaged ship. But a spokesman said the first divers on the scene reported there apparently were none.

Two police helicopters circled over the prime minister's residence and thousands of riot police were on guard throughout the city to prevent any attacks by right wing extremists on Teng or some 40 Chinese officials who accompanied him from Peking.

As on Teng's arrival Sunday, the protests of rightwing groups from sound trucks could be heard over the music of the band. The rightists shouted "down with the China-Japan treaty" and anti-Teng slogans.

Fukuda told Teng that Japan would never again become a military power as it was before and during World War Two. Shintaro Abe, chief secretary of the Japanese cabinet, told reporters that Fukuda said Japan had to rely on the United States for its main defense.

The two leaders, accompanied by their foreign ministers, held two hours of talks after the ceremony. Abe, forbidden by the Chinese to give details of the talks, said Teng had stated that the Soviet Union was continuing to strengthen its nuclear and conventional weaponry.

He said Teng added that there was a danger of war breaking out and it was necessary for China to continue to prepare for battle.

Before Teng arrived Fukuda said Japan would not cooperate with the modernization of the Chinese armed forces as part of the treaty.

Teng underlined China's support of the U.S.-Japan mutual security treaty and

British O-levels to be terminated

LONDON, Oct. 23 (R)—The government Monday announced that from 1985 the GCE exam which is intended for the brighter 20 per cent of children aged 16 and over, will be merged with another examination—the Certificate of Secondary Education (CSE)—intended for less academically gifted children.

Japanese efforts to defend its independence.

Japan has an anti-war constitution, dictated by the United States after the end of World War Two, but has organized "self defense forces" armed with modern ships, jet fighters and tanks.

Abe said Teng did not anticipate any actions by Vietnam against China.

The two Communist nations are involved in a bitter struggle over a number of issues, including Vietnam's argument with Cambodia, a Chinese ally.

Japanese foreign ministry sources said the word "hegemony" was not used by either side in the talks.

The Sino-Japanese treaty states that both countries oppose hegemony—the domination of a region by one country.

The term has been used frequently by Peking to describe Soviet policy in Asia.

Nkomo reported innocent of Rhodesia plane crash

LONDON, Oct. 23 (AP)—The Rhodesian Viscount airliner shot down last month causing an escalation in the guerrilla war, was brought down by Zambian troops, not Patriotic Front guerrillas, according to a reporter in the London "Sunday Telegraph."

The crash, in which 38 passengers and crew died, has been blamed on guerrillas of the Zimbabwe African People's Union, led by Joshua Nkomo, who has claimed responsibility. They reportedly used a Soviet ground-to-air missile.

But "Telegraph" diplomatic correspondent Norman Kirkham quoted African diplomatic sources as saying Zambian troops shot down the plane by mistake with a British-made Rapier missile, possibly during a training exercise.



China's Teng



Japan's Fukuda

Dust settles after stormy Greek elections

ATHENS, Oct. 23 (AP)—One of the hardest and most bitterly fought municipal election campaigns in recent times in Athens and the nearby port city of Piraeus ended with decisive victories for Leftist Popular Front backed candidates.

The runoff election of Sunday in Athens pitted ex-government minister George Plytas against Dimitrios Beis, a mayor

Bailed punk star slashes wrists in Manhattan hotel

NEW YORK, Oct. 23 (AP)—Punk rock star Sid Vicious, charged recently with the stabbing murder of his girlfriend, was rushed to a hospital Monday after trying to slash his wrists with a broken lightbulb. John Simon Ritchie, a member of a now defunct punk rock band took Sid Vicious as a stage name. He was staying at the Hotel Seville on Madison Avenue after being freed on bail pending his trial.

Ritchie was taken to Bellevue Hospital with several lacerations of both wrists after his psychiatrist, Steve Teich, called police at 2:50 a.m.

Ritchie was in satisfactory condition in the emergency room and no decision had been made on whether to admit him.

Vicious' mother, Ann Waverly, and Teich accompanied him to the hospital.

Postman's worst friend bagged 3,000 in France

RENNES, Oct. 23 (AP)—Official figures show that 3,000 French postmen were bitten by dogs in 1977.

A post office report said 66 percent of the bites were on the ankles 34 percent on the buttocks. The number of attacks has gone up by 41 percent in five years, the report said.

from the Athens suburb of Zographo. Beis won 57.28 per cent of the vote against 42.72 per cent for Plytas.

In Piraeus the nation's largest port, George Kyriakatos, trailing in early returns against Aristides Skylitsis, suddenly surged ahead to 53.43 per cent of the votes. Skylitsis, longtime mayor of Piraeus during the 1967-1974 military dictatorship was opposed by every party, including the government.

Kyriakatos and Beis had the support of the Moscow-line Communist Party and the Panhellenic Socialist Movement, the largest opposition

group in parliament. Abstention ran 34.4 per cent in Athens and 16.35 per cent of those eligible failed to vote in Piraeus.

One-third of Greece's 9.3 million population lives in the Athens-Piraeus area. Results from these two cities were watched carefully by observers as a harbinger of political trends on the national level.

The runoff elections were prompted following inconclusive results on Oct. 15 in 111 municipalities in which no candidate got the required absolute majority.

In an announcement, the

government said it placed no special importance on the local election results. But the political opposition claimed a victory for the "democratic forces" and added that the results indicated the government's overall popularity had dwindled since the last general elections a year ago.

Caramanlis' party at the time received 42 per cent of the vote to win a workable majority in the 300-member single chamber parliament.

Voting is compulsory. Those purposely failing to vote face fines or a month to one-year in prison.

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LAST VESTIGE

Mr. Mahmoud Riad, the Arab League secretary general, has remembered, albeit belatedly, that he should undertake an Arab tour to salvage what remains of the "deteriorating Arab relations." His attempt may have come a trifle late and it may be wiser for him to leave things the way they are for the time being.

Arab relations are not good but they are not as bad as many people seem to think. The current meetings and consultations on all levels of government among the various Arab states would keep differences within manageable proportions and overcome obstacles in the face of genuine Arab unity and solidarity. The current efforts will be crowned with the meeting of the Arab foreign ministers on Oct. 30 which will hopefully be followed by a summit conference on Nov. 2.

Mr. Riad's proposed tour could not be concerned with the efforts to hold a summit conference. The most that he could hope to achieve—and this is more difficult a task than securing agreement on a summit—is to improve relations between Egypt and the other Arab states. But the agreement on the draft treaty between the Egyptian and Israeli delegations in Washington must have pre-empted his mission before it had the chance to get off the ground. News that President Sadat has sent back the draft for further clarification will have little influence on the final outcome so long as President Sadat is determined to achieve an agreement one way or the other. The only chance that the secretary general has is for President Sadat to come forward and insist on linking the treaty with Israel to the future of the West Bank and Gaza Strip.

Mr. Riad, or the Arab League itself, is hardly responsible for Arab disunity. The League was born weak and has grown weaker. It lacks the power to translate its decisions into action and has remained since the Alexandria Protocol of 1944 a venue of Arab folklore more than a decision-making body. After 34 years of existence it reflects today the real image of the Arab divisions and impotency. There are states that boycott League meetings with regularity, others that boycott whatever they dislike and still others which shirk their financial responsibilities.

As a result, Arab summit conferences have been convened almost behind the back of the Arab League, starting with the first one in 1964 which followed a call made in a speech by President Nasser that caught everybody, not the least League officials, by surprise. The participation of the League in subsequent summits has been token rather than effective.

This does not necessarily mean that the Arab League should be written off. For all that it is supposed to stand for but does not, the League remains the last vestige of Arab unity and must be preserved if only for the lack of another body to bring the Arabs together. Mr. Riad hopes that his tour will heal Arab ranks and strengthen his organization. This is a tall order indeed, and the secretary general should congratulate himself if he manages to contain Arab disputes at their present level.

ERITREAN SETTLEMENT

President Numeiri's announcement that he may shortly meet Mengistu Haile Mariam, Ethiopia's head of state, revives hopes of Sudanese mediation between the Ethiopians and the Eritreans.

Previous efforts by Numeiri, who was eminently qualified to start a dialogue between the two warring parties, have been cold-shouldered by the Ethiopians. Mengistu believed at the time that he could bring about a military solution to the Eritrean problem.

He was still engaged in rolling the Somalis out of the Ogaden—with overwhelming Soviet and Cuban support. He believed, in the euphoria of that foreign-made victory that he could repeat the same feat in Eritrea. Success there has so far eluded him.

The Eritreans held fast to the territory that they had regained from the Ethiopians. All attempts to dislodge them were foiled. The Russians supplied arms but the Cubans would not get involved in a guerrilla war that they knew could not be easily won. Two hundred thousand Eritrean-regulars and peasant militia could not break the back of Eritrean resistance.

So, contrary to public pronouncements, the Ethiopians may be willing to talk to the Eritreans, who could have won the war a long time ago if they had only united their forces over ideological and personal animosities.

Numeiri has consistently advocated direct negotiations between the two adversaries, and has offered his good offices for this purpose. But first the Ethiopians must concede that the Eritreans have a case that should be heard and debated at the conference table.

Furthermore, the Ethiopians wrongly charge the Sudan with aiding and abetting the Eritreans whose territory adjoins that of the Sudan, and have so far refused Sudanese offers of mediation.

But the Sudan is too poor to sustain over 100,000 Eritrean guerrillas fighting Ethiopia for any length of time. It has neither the financial resources nor the weapons to keep such an army in a continuous state of war with anybody. The Sudan, at best, provides refugee camps and meager provisions to thousands of victims of the conflict next door. An early end to the fighting will certainly be welcomed by Khartoum provided that it means an honorable settlement for the long-suffering Eritreans.



Fuel Additive

Trade snarls

By Thomas Kent

BRUSSELS — Three international trade issues are threatening the usually cordial relations between the United States and the European Common Market, with Europeans accusing the United States of economic blackmail and the Carter administration blaming much of the trouble on the U.S. Congress.

European officials say the current atmosphere between the nine Common Market countries and Washington follows two years of smooth dealings between the two sides, who are each other's biggest trading partners. Several European countries including West Germany have been working intensively to smooth over the differences, but France and others have appeared to counsel a tough line toward the United States.

The problems revolve around barriers to international and special trading advantages of the two sides. For several years, according to European officials, many such U.S.-European issues have been swept under the rug in hopes that they would be decided in a larger framework at the 98-nation General Agreement on Trade and Tariffs (GATT) talks in Geneva.

The Geneva negotiators hoped to finish a new system for world trade by mid-December. But because of European anger over two U.S. congressional decisions, this timetable is now threatened.

The U.S. Congress, concerned about the health of the American textile industry, decided this month to prohibit U.S. negotiators in Geneva from making any concessions that would permit easier textile imports into the United States. The Common Market countries are in the midst of a

textile crisis brought about by high production capacity and too-low demand, and are trying desperately to export as many textile products as possible.

The Common Market member nations are Britain, France, West Germany, Italy, Denmark, Ireland, Belgium, Holland and Luxembourg. They function as a single bloc for foreign trade purposes.

In addition to taking textiles out of the GATT negotiations, Congress left open the possibility of heavy new tariffs on some imports from Europe. The lawmakers adjourned the year on Oct. 15 without agreeing to extend beyond Jan. 3 a special practice that spared European products from the usual U.S. retaliatory tariffs against foreign goods whose production or shipment is subsidized by foreign governments.

These tariffs may now be applied after the start of the next year. They could significantly reduce exports on the American market, which buys about \$50 billion dollars in European goods every year.

European officials have described Congress' actions as blackmail, aimed at forcing concessions from other countries at the Geneva talks.

The Carter administration strongly opposed Congress' action on textiles and campaigned for the tariff exemption on subsidized goods to be continued beyond Jan. 3. In a letter last week to the Common Market, U.S. special trade negotiator Robert S. Strauss apologized for Congress' action and urged that the GATT talks go ahead as scheduled.

But after a closed meeting in Luxembourg Oct. 17 that reportedly included hard-line speeches by French External Trade Minister Jean-Francois Deniau, Irish Foreign Minister David Andrews and his Danish

counterpart, Henning Christophersen, officials of Common Market governments warned that they will be unable to attend the GATT negotiations unless Congress' "grave decisions" are reversed.

"This could require a presidential veto of Congress' textile decision, Carter administration officials say a veto is likely."

"Washington tells us that we have to understand that Congress is hard to deal with because of congressmen who have to be satisfied or a congressman who wants something," a Common Market official said last week. "But it's the U.S. government's problem to deal with Congress."

Beyond the congressional issue, other U.S. and European interests may also be headed for a clash over the question of export guarantees. Under the guarantee system, a government agency guarantees the credit terms under which foreigners sell their home country's goods, resulting in better credit terms for the deal and hopefully boosting export business.

Fred Bergsten, the U.S. Assistant Secretary of the Treasury for International Affairs, has just finished a European tour campaigning for limits on such guarantees. He has pointed particularly to sales of aircraft and nuclear power plants — where Europeans, using guarantees to sweeten deals for their Airbus passenger jets, British Rolls-Royce engines and nuclear products — have just now begun to break into fields previously dominated by the United States.

This has raised immediate suspicions at the Common Market that Bergsten's trip is directed against Europeans in fields where subsidies have made them particularly successful. —(AP)

Passage to America

By Bob Lebling

Washington Bureau

WASHINGTON —

A U.S. plan to relax immigration laws and allow 1,000 Lebanese war victims to settle in the United States has undergone major changes, and is now expected to apply only to Lebanese citizens who manage to leave their country, congressional sources report.

The plan, formulated by the State Department and now being studied by Attorney General Griffin Bell, focuses on "family reunification," the sources said.

Lebanese who wish to take advantage of the program would have to leave Lebanon for a third country — such as Cyprus or Greece — or would have to be already living outside Lebanon.

The program, as originally proposed by Senator James

Ahuerezk of South Dakota, was to have applied to Lebanese inside their own country, specifically those hardest hit by the fighting in Lebanon.

But the State Department decided that a program of this kind would be very difficult to implement, sources said.

The department said no to a "safe haven" program of the kind employed in Vietnam — which would have required flying large transport planes into Lebanon to evacuate war refugees.

It would have been extremely difficult to decide which Lebanese could fly out on these transports and which would have to remain behind, the department concluded.

In addition, the recent ceasefire in Lebanon has removed some of the urgency of the situation, sources admitted.

So the plan has been modified to apply to war victims who manage to leave Lebanon on their own, they said.

"For example, if a Lebanese family of eight leaves Lebanon for Cyprus, and two of the family members already qualify to emigrate to the States under existing regulations, the other six could do so as well, as part of the 1,000," one source said.

The "parole program," as it is called, is still far from being realized, congressional staffers said.

If Bell decides to give Justice Department backing to the plan, it still must be approved by the chairman of the Senate and House Judiciary Committees, Senator James Eastland of Mississippi and Congressman Peter Rodino of New Jersey.

Japan's new trade push

By Mark Murray

TOKYO —

The signing of the Sino-Japanese peace treaty earlier this year has answered the prayers of Japanese businessmen.

With Japanese exports facing restriction in the United States and Western Europe, China is virgin territory of tremendous potential. In fact, many depressed industries here see China as a chance to become profitable again.

A long-term trade agreement to 1985 was signed last February. But on a visit to Peking in August, Trade Minister Toshio Komoto gained an extension to 1990.

The goal in monetary terms was originally set at \$20 billion, but under the five-year extension many government officials and businessmen expect a drastic expansion to \$80 — and even \$100 — billion.

By comparison, two-way trade last year amounted to \$3.3 billion and to \$2.1 billion in the first six months of this year.

The target of \$100 billion by 1990 is no idle dream. For example, it is already estimated that industrial plant exports concluded or under negotiation total \$10 billion alone.

Japan is prepared to sell a vast array of industrial machinery and equipment, including some highly sophisticated and therefore sensitive items such as computer, to help the Chinese industrialization program.

China will export oil, coal and other key minerals to Japan to help pay for the technology. Trade Ministry officials here believe China is determined to acquire as much of Japan's advanced industrial know-how as possible so as to be able to compete with the industrialized West by the start of the next century.

Of course, it will also be able to compete with its former teacher, but the Japanese feel the short-term benefits far outweigh such long-term considerations.

Under the long-term trade agreement, Japanese firms have so far this year sold 10 complete industrial plants (making, among other things, ethylene, synthetic leather and color TV tubes), eight ships, two oil rigs, four computer systems and considerable amounts of heavy machinery and equipment.

Under negotiation are contracts for at least a dozen more plants, including a giant integrated steel mill near Shanghai, and polyester fiber and truck factories. Two more steel mills will probably be expanded under Japanese guidance.

Legislators also were concerned about the expected increase in tanker traffic at U.S. ports because of the surging demand for foreign oil. In 1978, about 35 tankers arrived in American harbors each day, carrying eight million barrels of crude oil.

The bill mandated better control of ship traffic and requires tankers to install electronic gear to prevent accidents.

It also seeks to decrease the discharge of oil during routine tanker operations. About 85 per cent of the oceans oil pollution came from the discharge of oil water used to clean tanks.

The provisions of the Port and Tanker Safety Act are similar to those of the 1978 London Protocol to the International Marine Pollution Convention.

The primary difference between the U.S. legislation and the international convention involves tankers under 40,000 dead-weight tons.

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ance, as will two important shipyards.

The Chinese are considered certain to import power generation facilities from Japan, and Trade Ministry sources say China also wants to buy machinery and equipment in such fields as fertilizer, aluminum and copper smelting, glass, electronics, building and heavy construction materials.

A flood of Japanese economic missions to China is scheduled in the coming months. But of more significance is the reported willingness of the Peking government to allow Japanese trading firms to establish permanent offices in various parts of China.

The Chinese have indicated willingness to accept loans from the Japan Export-Import Bank under internationally agreed terms.

Problems remain, of course. First is the fact that Japan is a signatory to the COCOM agreement which bars the export of strategic items, such as advanced computers, to Communist countries.

Another problem is that China will pay in kind rather than cash, mainly coal and oil, and there are severe limits on how much Japan can absorb.

(OFNS)

New U.S. tanker law

By Peg McKay

WASHINGTON —

President Carter has signed into law a "landmark piece of maritime safety legislation" designed to curb oil spills and reduce tanker casualties by imposing stricter safety standards.

The bill, known as the Port and Tanker Safety Act of 1978, was first passed by the Senate on May 26 and received final congressional approval October 3, shortly before adjournment of the 95th Congress.

Congressman John M. Murphy, Chairman of the House Merchant Marine and Fisheries Committee, said the measure aims at protecting American ports and waterways and at meeting "the U.S. and international objective of protecting the high seas and coastal areas from environmental damage caused by oil tanker groundings and break-ups."

Congressional action on the bill was motivated by several tanker accidents, including the hull splitting of the "Argo Merchant," a Liberian vessel that ran aground off Massachusetts in 1976, dumping 204,000 barrels of petroleum

into the sea; the disintegration of the "Amoco Cadiz" off the shores of Brittany, France and the massive explosion on the "Sasineena" in Long Beach, California.

Legislators also were concerned about the expected increase in tanker traffic at U.S. ports because of the surging demand for foreign oil. In 1978, about 35 tankers arrived in American harbors each day, carrying eight million barrels of crude oil.

The bill mandated better control of ship traffic and requires tankers to install electronic gear to prevent accidents.

It also seeks to decrease the discharge of oil during routine tanker operations. About 85 per cent of the oceans oil pollution came from the discharge of oil water used to clean tanks.

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The provisions of the London protocol apply only to tankers 40,000 tons and above. The Tanker Safety Bill calls for more stringent standards beginning in 1986, on ships 15 years old that are between 20,000 and 40,000 tons.

The Port and Tanker Safety Act of 1978 also will do the following:

— Broaden the authority of the United States coast guard to establish traffic service in areas outside territorial limits.

— Allow the Secretary of Transportation to terminate vessel movement if in violation of laws or regulation;

— Establish safe access routes for vessels proceeding to and from U.S. ports;

— Expand the national inspection program to ensure compliance with regulations, and to issue certificates of compliance;

— Establish marine safety information data systems on vessels operating within U.S. waters;

— Require that regulations be developed in cooperation with federal, state and local officials. —(USICA)

saudi press review

"Al-Medina" said that the Saudi-Mauritanian talks, while discussing relations, were also called for by the present situation in the Arab world. They are part of a continuous process of inter-Arab consultations in which the Kingdom has played an important role. The paper referred to the recent Arab foreign ministers' conference in Beirut in which the Kingdom made a crucial contribution both during the talks and in carrying out the resolutions of the conference.

"Saudi Arabia is very concerned about the need for peaceful inter-Arab relations and would do its utmost to ensure peace in the Arab world. The talks in Taif aim at stopping the bloodshed in the Maghreb that has involved Algeria, Morocco and Mauritania."

The paper said that Saudi Arabia "will do anything provided the others are willing to accept a solution that ensures the sovereignty, unity and understanding of countries in the region."

"Al-Medina" surveyed the traffic situation in Japan and compared it with conditions here. The writer was surprised to hear that there were hardly any accidents, no over-crowded cars, no pedestrians hit and no cars involved in accidents with each other. "The contrast with our situation lay not in the width of streets or in the quality of traffic police,

but in ourselves."

"Al-Bilad" said that over the past 50 years Saudi Arabia has become powerful in promoting good Arab relations and the meeting ground for those who wish to resolve their differences and consult on Arab affairs. "The Kingdom's policy, has been to keep all bridges open with all Arab states in the interest of Arab understanding, whatever the problems."

"In view of this policy, we receive almost daily a stream of Arab and other leaders who come for talks with Saudi leaders."

A Western statesman who followed the results of the Saudi oil policy said that the day would come when the Kingdom would become a world leader whose opinion would always be sought or at least whose participation would always be necessary.

"Al-Bilad" said that doctors' fees for ordinary examination have been raised by government order from SR. 20 to SR. 50 and SR. 70, to enable physicians to improve their services by acquiring modern medical equipment and facilities.

"Despite the enormous increase of 100 per cent to 120 per cent these facilities have hardly changed, and the increase was unreasonable."

"Al-Bilad" wondered where all the drinking water supplied to Jeddah went.

Jeddah receives 100,000 cubic meters of water a day about 25 million gallons — in addition to the supplies from the desalination plants.

The writer said that while consumers must be held responsible for some of the waste and misuse of water, the underground pipe network must be partly responsible through defective workmanship.

On the Kingdom's Islamic role "Othman" said that the government views its wealth as a resource in the service of the Muslims everywhere.

"From this point of view, the Kingdom promised the Arab-African conference in Cairo last year to make \$1 billion available for African development. The Saudi Development Fund is also assisting African countries to finance development projects."

The Kingdom for example is playing an important role in the Senegal river basin project, which will help alleviate the drought in four African countries. It is the sense of Islamic obligation that dictates the Kingdom's attitude towards Muslims everywhere.

Hawaii labors to use its excess volcanic energy

By Lou Cannon
KILAUEA, Hawaii — The volcanoes that created this largest and lushest of the Hawaiian islands and occasionally endanger it now hold the promise of making this tourist-laden state energy self-sufficient and industrialized.

Design work has begun on a \$16 million generating plant financed by federal, state and local governments with the assistance of the Hawaiian Electric Co. The pilot plant will be powered by steam from the world's hottest geothermal well.

At the same time, Hawaii is encouraging various consortiums pioneering in the undersea industry of manganese nodule mining to build a refining plant here that will make it economically worthwhile to develop the vast geothermal resources underlying the Kilauea.

"We have a new ball game here," says Hideo Kono, state director of planning and economic development. "Petroleum is no longer a dependable source. Activities will grow in places where there are dependable alternative sources of energy."

The potential "dependable sources" of energy in Hawaii are not limited to geothermal ones alone.

The island of Hawaii already obtains more than a third of its electrical energy from the burning of bagasse, a sugar cane residue that resembles crumbled straw. On the crowded island of Oahu, where most of the state's 800,000 residents live, contracts will be awarded within the next few weeks for the collection of solid waste that will be compacted and used as fuel.

More exotic forms of energy

development lie ahead, ranging from eucalyptus tree farms for firewood to the researching of ocean thermal energy to an experimental 16-story energy-generating windmill.

Volcano power

But it is in geothermal energy, where the expected resource is large and the technology well developed, that Hawaii's future seems brightest.

The island of Hawaii, most southern and easterly of the chain that comprises America's 50th state, is rich in volcanoes and sparse in population.

Six years ago the University of Hawaii organized the Hawaii geothermal project and after 100 study drilling commenced on a four-acre site near the town of Pahoa in eastern Kilauea.

Two years ago the drillers were rewarded with the discovery of an unusually hot well — 350 degrees centigrade — at the relatively shallow level of 1,935 meters. The well has been tested periodically since, most recently with 42 days of continuous operation, and has continued to produce high-quality steam. Now, with federal and county assistance, the state has decided to build a three-megawatt pilot generating plant on this site.

Bill H. Chen, the University of Hawaii engineering professor who directs the geothermal project, believes that the intensely hot waters tapped by the well may be part of a vast underground lake that runs from the crater of the volcano to the ocean nearly 60 kilometers away. The reserves are presently incalculable, but could produce thousands of megawatts of electrical energy.

Development of the geothermal steam is planned in stages. After the pilot plant has been completed and tested in 1980, plans call for construction of a 23 megawatt plant. After that, Kono envisages a 110 megawatt plant that will serve a manganese nodule refinery a decade from now. Ultimately, says Kono, the geothermal well could produce 500 megawatts of electrical energy annually, enough to provide power for a city of a half-million.

In terms of energy availability alone this may be severely understating the resource because other volcanoes in Hawaii

are thought to possess similar underground reservoirs. But the economics of development are more difficult.

Excess energy

While most regions in the United States are hard-pressed to meet the energy needs of their populations, the big island of Hawaii must find a use for the excess energy it is capable of generating.

Potential uses include development of an energy intensive alumina bauxite refining industry or piping the energy to the Puna sugar mill 25 kilometers away where another federally funded study is trying to determine the feasibility of using geothermal steam in sugar processing.

But the best long-term prospect appears to be the manganese nodule industry, which, because of the huge capital investment needed for deep-sea mining, is expected to locate in countries with stable governments and in states that desire industrial development. Hawaii is strategically located near the richest field of manganese nodules in the Pacific, a band stretching from about 1,600 kilometers south of the island toward the coast of Baja, California.

But in the economic calculus for the project, there are many variables, ranging from the world price of petroleum to the now-depressed world price of nickel, one of four minerals extracted from the manganese nodules.

Unpredictable source
The biggest variable is the volcano. Because of the same intense volcanic activity that produces the steam, Kilauea holds peril as well as promise for potential developers.

Within sight of the well are two irregularly shaped mounds that where the vents — the places where lava escaped — in a 1955 eruption. From these vents a lifeless river of grey rock now extends to the sea.

The volcano erupted again last year at a site 32 kilometers away from the well.

Because of the volcanic hazards, the Hawaiian Electric Co. is unwilling to participate in extensive commercial development until a costly backup system — which could be activated if the geothermal plant were threatened — is built.

This has led the state and country to think in terms of a government-developed system that would be devoted to industry rather than residential use.

"It's an unacceptable proposition to have your electricity interrupted for a few days at home because of a volcanic eruption," says Chen. "But a large industry could live with this risk if its potential profit is great enough."

Chen believes that a power

plant can be located in a relatively safe place and the wells dispersed so that a volcanic eruption would leave most of the system intact.

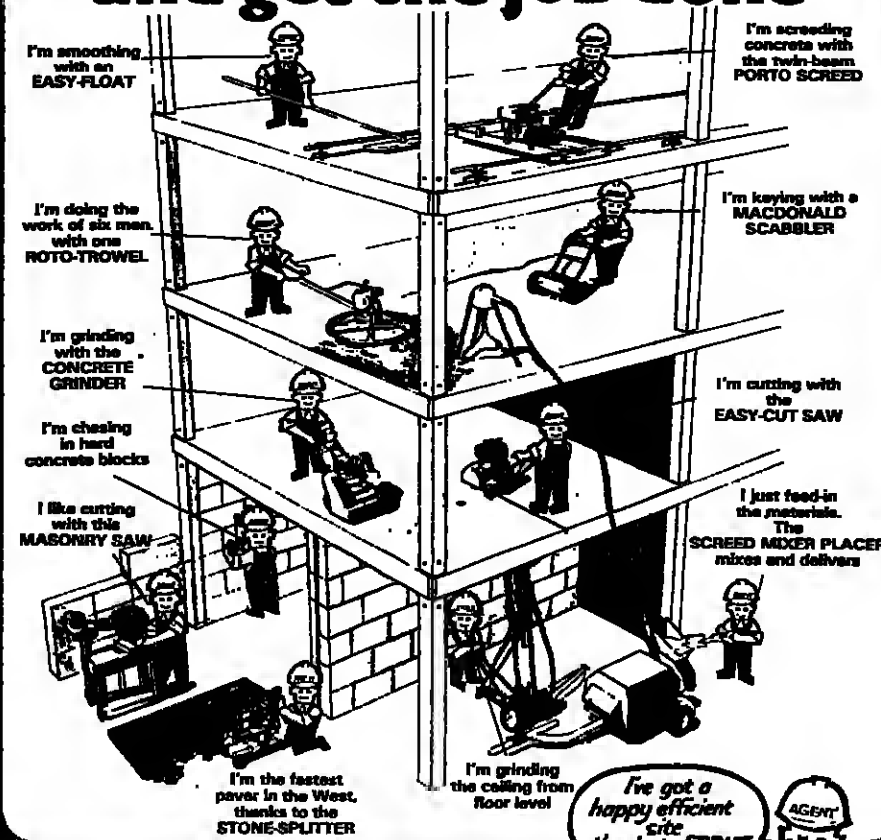
There appears to be substantial public support for the geothermal plant and accompanying industrialization. Government and private employers here are deluged with job applications, many of them from island residents who have left and want to return.

"People think of Hawaii as grass shacks and hula skirts,

and we're responsible for it because we promoted it," says John P. Keppeler, managing director for the County of Hawaii.

"But it isn't an accurate image. We have a skilled labor force here and one that needs work because sugar is depressed, and we have lots of resources. The story up to now has been Oahu and Maui. The story of the next 20 years is going to be development and energy on the big island of Hawaii." —(WP)

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A rare musical offering from a blended cultural past

By F. W. Rawding
JEDDAH—Anthony Rooley and Emma Kirkby came in from Sanaa on Oct. 21 to perform as part of a tour of the Middle East, illustrating with lute and vocal music the esoteric and emotional links between early European and Arabian modes.

It was fortunate for Jeddah that they did. Their concert was a rare and delightful musical experience.

They have been very well received by mixed Arab and European audiences in Mus-

From these elements a catharsis of interior joy rises. The contemporary Arabian use of the lute, though, is vigorous and insistently rhythmic; European repertoires, both early and modern, use the lute contemplatively and lyrically.

The tour is under the sponsorship of the British Council, which is to be congratulated both for bringing in these fine musicians and for the excellent brochure, in Arabic and English, which sets the music in its historical and

Rooley, who studied the guitar at the Royal Academy of Music in London, says, that he was attracted to the lute by "the directness, simplicity, lightness, and subtlety of the instrument." The lute became obsolete in Europe around 1750 having undergone a short phase of modification to increase its refinements, which effectively removed it from the ability of performers to play. It is a meditative and introspective instrument. An audience which might look for the attack and bravura of

of this modern movement of renewal.

There is an Early Music Center which Rooley founded in London in 1976 that has a permanent ensemble. The Consort of Musicks, of 16 professional singers, viol players and lutenists. The Early Music Center exists to teach as well as to interpret, and it runs full time courses of one year for lutenists. Rooley himself has now withdrawn to concentrate on interpretation, but he conducts master classes at the school. He will also take part in an international seminar on the lute which is being held in Baghdad in December.

About 30 craftsmen make the instruments required by students and performers—the lutes, citrines and viols—and what for centuries had been an absolute skill is now revitalized. This is an aspect of the contemporary English experience, the restoration of quality to life, which will be more important in the long term than the mechanical production of wealth.

Cultural identity

It is a very exciting development, not least for Rooley himself, who finds in it, "a search for my own cultural identity and a means of re-constructing an approach to life." The music exemplifies much of the serenity and harmony of the Age of Faith from which it arose.

Emma Kirkby came to this music through Classical studies at Oxford and through her simple love of singing, her voice at first quite unschooled. She now trains under Jessica Cash whom she describes as "a sensitive and imaginative teacher." Miss Kirkby, too, believes that "art improves on nature," a very Renaissance and Augustan idea, and not perhaps entirely in tune with the contemporary insistence that "nature is all."

"The Renaissance composers," she explains, "were sensitive to the needs of the voice, the God-given, perfect instrument. Words were crucial and the singing voice was a natural extension of coherent human speech. Therefore it should sound natural." Where art improved on nature was in the improvisations, both for instrument and voice, which early European music encouraged and which spring largely from its Arabic sources. This "noble negligence" of pre-meditated improvisation was a highly disciplined art form and so subtle that in the performance one does not quite know where nature ends and artifice begins.

Like the painted miniatures which were so much a feature of the visual art of the period, Renaissance music itself was a kind of miniaturization. Under a variety of musical conditions—natural, versatile, improvisatory—a momentary awareness of startling simplicity burst through. Small is exceedingly beautiful. The human voice, accompanied, supported and set into relief by the quiet thoughtfulness of the lute is both intimate and universal, personal and micro-cosmic.

During the performance on Sunday evening, there were many occasions where it was the heart strings of the audience which were plucked and stroked. There were numerous wonderful contrasts of mood and style.

The concert opened with North Italian Court music of about 1500 A.D. Three short solo pieces for the lute, highly improvised, set the mood for what was to come after. The instrument demonstrated its gentle resonances and sensitivity in a quiet, reflective introduction. A song, "Chui Didero," "Who says that I should

not love her," followed. Its moving harmonies were a perfect vehicle for Emma Kirkby's bright, clear, pure soprano voice.

In "Se Mai Per Maraveglia," an almost entirely improvised, rhapsodic interpretation of Christ's Passion, the singer responded to the mood of melancholy which the lute supported and emphasized. The voice soared and thrilled in counterpoint to the instrument and the whole effect was sublime and extraordinarily moving.

In "Revercare," for the solo lute, Rooley demonstrated his virtuosity in a series of musical episodes which seemed to spring from moods and feelings of calm reflectiveness. The limitations of the instrument in terms of its quiet levels of sound and its quickly dying resonances were completely overcome by its subtlety. One must listen to the lute, an instrument for small spaces. Our ears, battered by the noise levels of contemporary life, need to respond with, perhaps, an unaccustomed concentration.

In "Ahime Lasso," there was an example of the mannered music of "inconceivable grief," which, like Count Orsino's posturings in "Twelfth Night," are not meant to be taken entirely seriously. The same sentiments, even more impassioned, ran through the next piece, "Suspir To Thema." One suspects that the same moods of being in love with love which are central to contemporary popular Arab music are also taken with a pinch of pepper. Unquestionably, however, in her interpretation of the music, Emma Kirkby lends substance to the view of the human voice as the perfect instrument. With great authority and power, but also tenderness and brilliance of ornamentation, her voice remained natural, coherent and crystal clear.

The last piece of the Italian selection was a most inspiring sacred song, "Vergine Bella" from one of Petrarch's celebrated poems, "Crowned with Stars." A serene melody, it was beautifully pointed by the lute and superbly sung.

Joyful experience
Emma Kirkby, with her flowing golden hair, fair complexion and graceful Raphaelite costume, took precisely the part to sing this kind of music, quite unself-consciously without affectation or contrivance. Indeed, after the forced, constricted voices one hears following the demands of the debased, contemporary popular taste, it is a lovely, full-throated, natural sounding voice, every syllable precisely measured and every word intelligible.

Three pieces of Spanish music of the middle sixteenth century followed. First a lute solo—"Fantasia," plaintive, sensitive, sophisticated music of great charm. Then a Lament, "Dules Exuviae," based on the story of Dido in the Aeneid, brought into play all the power and range of Emma Kirkby's remarkable voice. Finally, before the interval, a Moorish piece, "De Antequera," illustrated mixed exhibition and melancholy.

A selection of Venetian music of about 1600 A.D. opened the second half of the concert. This was all Monteverdi which particularly illustrates the emergence of national characteristics in the early European music, moving away from formalistic modes, but at the same time building a highly decorated freedom of expression touching the mood of the listener. A love song, "Quel Squardo," produced a fountain-like cascade of thrilling sounds. Another Lament, "Lamento D'Olimpia,"

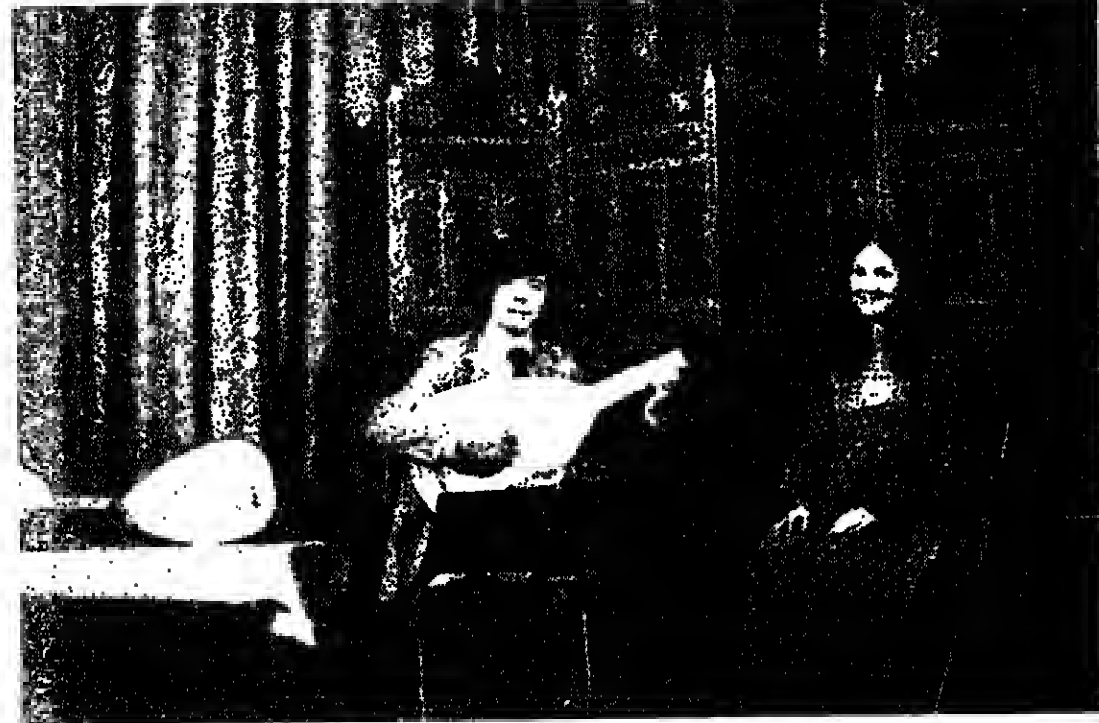
"I want only to die, Bireno," repeated a refrain of great power and passion. Finally, in the Venetian section, there was a charming contrast "Exulta Filia," a joyful piece of sacred music, cheerful, airy and exuberant. The bell-ringing sound of the voice was one of the most moving passages of the evening.

English music
The selection of English music, of about 1600 A.D., started with a solo lute dance: "Fantasia of Pavane, Galliard

were by John Dowland, "The English Orpheus," an immensely popular and influential musician of his day. The pieces illustrate a great beauty of construction and reflect a particularly English sentiment, "Flow my Tears," was marked by some supremely expressive, quiet passages. Here, Emma Kirkby's sensitivity as an interpreter of moods was heard to its full effect. There was little room for improvisation in this piece, but instead, the opportunity for

ses all the grace and confidence of the Elizabethan period in England. "Sorrow Stay," a beautifully sad song had, nevertheless, the effect of leaving the listener uplifted, chastened by the mood of pity. "Farewell Unkind," the final piece, was full of bitter-sweet wit and wistfulness.

The ovation which the performers received demanded an encore, which was "When to her Lute Corinna Sings," by Thomas Campion. This illustrates the naturalness and sim-



Anthony Rooley and Emma Kirkby in concert

cat, Kuwait, Abu Dhabi and Yemen. The themes and moods of their music have much in common with contemporary, popular Arabic music—melancholy, introspection and unrequited love,

cultural context.

The musicians have performed together for the past five years and they have made several recordings of the music for the Decca company.

the guitar will be disappointed. The lute, however, with its quiet possibilities, is now enjoying a revival. England, where in the sixteenth century the lute produced a superb repertoire of music, is the center



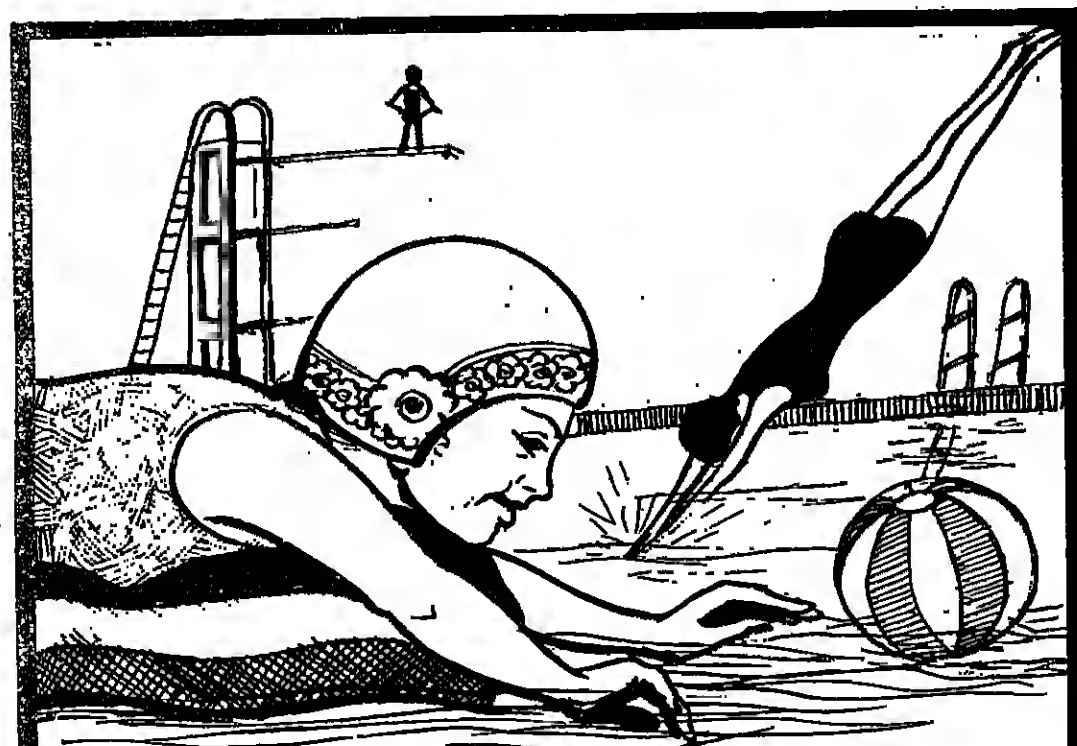
and jig." Measured and formal, with a splendid dignity, the piece ended with a merry jig which had a surprising contemporary, "country" flavor about it.

The remaining four pieces

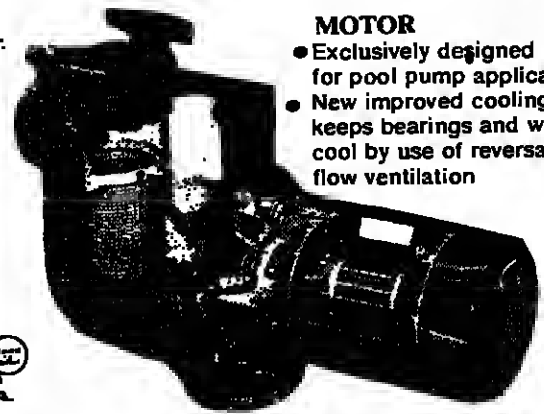
elaboration was taken by the singer.

"Can she Excuse," a love song written in the form of a Galliard, presents challenges both to composer and interpreter. It is a piece which expres-

plify of the English music of the period. The faces of the audience were lit up by the delight and enchantment of this rare musical experience. May it very soon be repeated.



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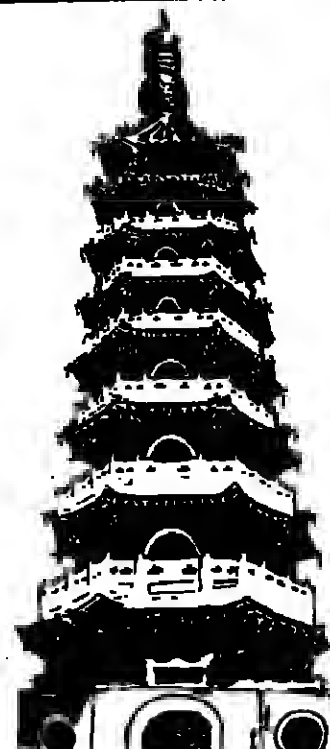
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هذه من الصور

Egypt's army

Turning away from the east

By Martin Woolacott
BAR-LEV LINE. Sinai—The troops, tanks, carriers, missiles, and guns of the Egyptian army, with air force jets overhead, wheeled past President Anwar Sadat earlier this month in the annual celebration of the 1973 Canal crossing. But what the president was watching has in the last few weeks suddenly become almost as much of an anachronism as his own Prussian-style marshal's uniform.

For 30 years the Egyptian Army has been trained, equipped and deployed for war with Israel, as a key to cut to fit a lock. With peace not far away, Egyptian soldiers are beginning to struggle out of the burrows in the eastern desert and Sinai in which, as a military attaché put it, "They have lived like moles for a generation." In the vast non-colored country east of Cairo and up to and beyond the Canal, the army is everywhere, and there is nothing much else besides the army, unless you count the endless stretches of gravel crusted sand.

Nearer to the Israelis, you see the spread-out vehicles, half-dug tank pits, the gruff-like necks of AA guns, and the air tubes of underground bunkers that are the marks of any army still in the posture of war. But, even before the peace initiative, an element of going through the motions had become apparent.

Tourist attractions
 At the Bar-Lev Line, those Israeli positions left intact by canal-widening operations are already on their way to becoming national monuments, fenced and preserved tourist attractions. Around them, the desert is still a battle junkyard, Israeli tanks left five years ago, bits of aircraft, trucks and even railway freight cars scattered around. At Position Tewfik, officers point out the machine guns and mortars, list the Israeli casualties, and give details of the assault.

There is not much left to recall the sheer hell which both sides must have gone through five Octobers ago. As the officers speak, a French freighter moves past behind them—the position is right at the southern end of the Canal—gliding through the brilliant turquoise waters as if on invisible rails.

At Position Navarone, so-called because its heavy guns were automated as in the film, they even have little tables

with beach umbrellas set up on one of the high points. A quote from Moshe Dayan is painted on one of the twisted gun doors: "The Bar-Lev Line looks like a piece of cheese with holes in it." That accolade from the enemy is what the Egyptian army needed, wiping the slate clean for nearly 80 years in which it had been uncertain of its reputation and performance.

Athara and Omdurman.
 The modern Egyptian army goes back to the British-occupied Sudan under Lord Kitchener. At Athara and Omdurman, wrote a British war correspondent, "The fellahs stood like a wall" against the dervishes, adding his recommendation that Britain make the Egyptian forces "an African second to our Indian Army." But the British, for political reasons, never used the Egyptian army again, and it languished through two world wars, degenerating from disuse, as armies do. That was the background to successive defeats by the Israelis which, eventually produced the reforms which made the victory of 1973 possible.

But what is the purpose now of this massive establishment, with its 350,000 men, its great armored force of 1,500 tanks, and its air wing of perhaps 500 combat aircraft supported by a complex missile defense system? It is not as if these equipments can be retained without cost and, indeed, they desperately need replacement.

'Scrap iron'
 "In 18 months at most," Sadat said in 1976, "my weapons will become scrap iron." It was a gross exaggeration, but the core of the Egyptian military machine still consists of aging Soviet equipment. The need to re-equip raises in even greater form the question of a new mission for the armed forces. A vigorous infantry major met in Sinai saw no problem: "Now we must face threats from the west and the south, the headwaters of the Nile. Without the Nile, Egypt is nothing." That takes us full circle back to the Egyptian levies at Omdurman, but neutral observers see no real threat to or from the Sudan. As to the "west," the major meant Libya, with whom the Egyptians clashed last year.

Colonel Moammar Qaddafi, however, has money and



President Anwar Sadat: new role for the army?

masses of modern equipment but very few men. The "threat" from Libya is limited. What is really on the horizon is well known to almost everybody: an army of African intervention. "They're going to be our Cuba," chuckled a Western diplomat.

There have been plenty of straws in the wind, apart from Sadat's own half-veiled references. The purchase of C-130 military transports—useless for war against Israel, perfect for moving expeditionary forces—was one, as was the limited Egyptian aid to Somalia and Zaire. Egypt's new surface to air missiles, French Croales, are mobile: "You could move them to Rhodesia and have them firing in a day," said one military man.

Symbolic change
 Early this year, there was an apparently minor but symbolically significant change when Egyptian soldiers were issued with olive drab uniforms. "That would make you a sitting target in the desert," a disgruntled Egyptian said, "but in the jungle..." Egypt in the future, diplomats say, will provide equipment and instructors to African states threatened by Communism, and will "have the capacity to send in powerful expeditionary forces if necessary."

The intervention role, in Africa and notably in Yemen, has been played before by the Egyptians. But the picture now seems clear. The army of the future will be smaller, possibly all-regular rather than conscript, and it will be generously re-equipped, although not to the present scale. Retaining a basic defense against Israel, it will concentrate, however, on an intervention capacity.

Whether that capacity will be used and, if used, used successfully, is something that obviously cannot be known in advance, but staring down at the formidable slopes of Position Tewfik, through which Egypt's peasant soldiers cut and smashed their way at such

Egyptian look a hit at Paris fashions

By Peggy Mason

PARIS. — Egypt and China are battling for top fashion honors in the spring and summer ready-to-wear collections being presented in Paris.

To enliven the scene even more, there is a dash of Occidental flashbacks to the 1950s along with a nod to mannish and military trends.

Kenzo launched the Egyptian theme last week and the same idea turns up in dozens of low-price collections at the Porte de Versailles, where 1,400 exhibitors are displaying their latest wares.

Certain stands are elaborately decorated with bamboo, papyrus and reeds.

Today's Egyptian queens wear skinny skirts of transparent cotton, wide sashes knotted on one hip and tabular tops with strapless décolletés.

One designer with a taste for the macabre added to his Nile look gold lame snakes coiled around the neck in lieu of Cleopatra's more traditional jeweled collars and metal bibs.

The animal Kingdom also emerges in Chinese-inspired ensembles with printed or embroidered dragons breathing fire across the backs of long, slim tunics with high Mandarin collars and slits up the sides, worn over tight pants.

While Kenzo drifts slowly down the Nile, his military look has been copied by dozens of small manufacturers. The broad padded shoulder is everywhere, even on sweaters and knitwear, but military trends are most obvious and effective in leather.

There are blousons and jackets, motorcycle outfits and trench coats often trimmed with padded quilting.

Many of the mannish styles are youthful and charming, often inspired by Maurice Chevalier with jaunty striped trouser-suits complete with waist coat, straw boater hat, bow ties and cane.

Louis Feraud, ranking couturier as well as a ready-to-wear leader, does an enormous group of formal clothes based on a man's dinner-jacket. Sunday night the Feraud collection featuring sequined or velvet trouser-suits was presented between the acts at the Paradies Latin nightclub. (R)

Hot colors and shine
 big with ready-to-wear

By Suzy Patterson
 PARIS—Shapely or sporty, Paris ready-to-wear is coming up with lots of good ideas for next spring and summer. Designer Issey Miyake's bouncy dresses shown on Saturday had the newer narrow look, in hot colors, with red, pink, yellow and ochre tones, wide horizontal stripes. The skirts are fitting and sun-pleated, the tops are clinging.

Pants here are floppy, narrow at the ankle, or there are shorts with large tunic or shorter tops, often in soft plaids. The look of a belted dress or straight tunic over narrow trousers is all over Paris collections.

Jean-Claude de Castelbajac showed a very sporty line, as usual, with plenty of cotton and even leather for spring. A lot of shorts and culottes here echo the general Paris spring mood, where there is big new interest in pants of all lengths. Pedal pushers or Bermudas are very narrow; other pants usually are pleated or gathered at the waist, rather short at ankle.

Lots of white with orange, green, burnt sienna, quilting and zips and pockets all over are typical Castelbajac. When skirts are shown here length is well under the knee. A fun idea is cotton tulle reversible jackets with an iridescent look. There's a lot of shine and sheen in Paris this year.

Jules-Francois Crayha at Laavin showed a beautiful collection ranging from very sporty to silky and dressy, in most wearable lines. Trousers in cotton had wide waistbands and belts or were gathered at waist. Pedal pushers or Ber-

musias here in khaki, cerise, bright blue and orange are often topped by belted tunics, one with a long "shirttail" back.

Crayha does the new body-fitting look gracefully, with short jackets that have slightly puffed sleeves, wrapped blouses with capped sleeves and wraparound or circular skirts, mid-calf or just longer.

The late-day look at Laavin is tempting indeed, in dresses with floppy, ruffled "petal" or corolla fronts all the way down. The bold prints in bright colors of silk crepe de chine are often in digits—which doesn't mean the designer ran out of ideas, just that twos and eights have definite flair.

Ungaro came all out for the forties, in his big-shouldered jackets, and slim-tipped skirts that are even "forties" length, just below the knee, worn with tattering high-heeled or flat sandals in lame.

Ungaro's collection shines and shimmers with big pop jewelry, multicolored lame belts and shoes, and satin fabrics, which he has liked for a while but now does better than ever.

Best looks are in narrow wraparound or bias-cut circular skirts with puff-sleeved jackets, draped halter tops. Waists are very much in here as everywhere, and the satin look is sometimes combined with linen in jackets. Colors like violet and sun yellow, pink, raspberry and grey make happy combinations. Then there is the Ungaro print look, sometimes in big lips, ice cream cones, little exotic scenes.—(AP)

Uranium ore in Navajo lands

By Sandra Blakelee
MOUNT TAYLOR,
 New Mexico —

America's largest and deepest uranium mine is nearing completion here on the slopes of a Navajo Indian sacred mountain situation on the arid high plateau of the southwest.

Using enormously powerful tools and equipment, a few dozen miners have sunk two shafts down to a depth of more than 900 meters to a rich deposit of uranium ore.

The first ore will be reached within a few months but the mine will not be in full operation until the early 1980s, according to officials of the Gulf Minerals Resources Co. of Denver. The company, which is exploiting uranium, coal and deposits in the West, is a subsidiary of the Gulf Oil Co.

Mount Taylor is one of four mountains held sacred by the Navajo Indian tribe. It also possesses one of the largest known uranium reserves in North America, estimated at 45 million kilos of ore. The mine is located in an area of New Mexico known as the Grants uranium mineral belt, where 25 companies are currently delving for the valuable substance. Of the 272 million kilos of uranium ore estimated to underlie the Grants belt, a region 32 kilometers wide by 152 kilometers long, about half has been excavated since the 1950s.

Of the remaining 136 million kilos, about one-third is at Mount Taylor. This uranium is deposited for 11 kilometers along the route of an ancient riverbed which is now 900-1500 meters beneath the surface.

Production of yellow cake, the raw material extracted from

uranium ore, is expected to average 2.7 million kilos a year over the 25-to 30-year life span of the mine.

Unearthing such an ore deposit is no easy feat. Gone are the days when uranium or other valuable minerals lay on the surface of the land, waiting for someone with a pick axe and burro to stumble upon them.

Uranium mining today is an advanced technological undertaking. The ore is harder than ever to find and bring up safely. Officials at Mount Taylor will not disclose how much it has cost Gulf Oil to seek this resource but it may be, according to one guess, around \$140 million. However, yellow cake sells in 1978 for \$40 to \$45 a pound.

Two shafts have been sunk at Mount Taylor. One, measuring three meters in diameter, is for delivery of materials and fresh air into the mine. The second shaft, at 7.2 meters in diameter, is for hoisting out the ore and exhausted air.

Both shafts are lined all the way to the bottom with concrete. Many water deposits or aquifers have been encountered in the digging, and these must be sealed off with cement. In digging the shafts, six miners are lowered at a time, carrying pneumatic drills which they use to sink 1.8 meter holes for planting dynamite.

After blasting the rubble and muck are scooped to the surface. Then the cement walls, which are carefully plumbed from the top down, are laid in place.

Both shafts will be fully completed by mid-1979. A uranium mill will be built on the

surface for extracting about one pound of yellow cake from each ton of ore brought to the surface.

Tailings, the rubble left over after the uranium is out, will be piped in slurry form to an earthen dam about 11 kilometers from the shafts and a mill. At full operation, about 4,500 tons of tailings will be produced each day.

The tailings are perhaps the most difficult problem the company must deal with since they contain radioactive radium.

About 20 huge piles of tailings are scattered about the Grants region, left by previous mining operations. The federal government recently declared the dusty piles to be a hazard and said it will dispose of them, perhaps by burial, in the near future.

Gulf Mineral officials said their disposal technique is temporary. After the mine is exhausted, in 25 years, they hope some better disposal or reprocessing techniques will be available. In the meantime, they say they are doing their best to protect everyone's health.

In the years to come, company officials will have to deal with problems of Indian rights, since they are leasing Indian lands, and with all the ills that accompany the making of boom towns which must some day go bust.

The company said that it feels a great responsibility in dealing with these problems.

In the end, sufficient uranium will come from Mount Taylor to produce enough electric power to satisfy the needs of California, Washington and Oregon for nine years.—(LAT)

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Hot colors and shine big with ready-to-wear

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Dollar drops to record low U.S. economist predicts recession in two years

LONDON, Oct. 23 (R)—The dollar fell to record depths against the West German mark and Japanese yen Monday on the eve of President Carter's announcement of his anti-inflation program aimed at halting the U.S. currency's dramatic slide.

On the Tokyo Foreign Exchange Market, the dollar tumbled to 181.05 yen in spite of heavy support from the Bank of Japan which was estimated to have bought \$100 million in a vain effort to prop up the U.S. currency.

The dollar has shed about 55 yen in value since the beginning of this year. Its previous low against the yen was reached last Aug. 15 when the dollar hit 181.80 yen.

When the London Foreign Exchange Market—the world's largest—opened, the dollar dropped below the 1.80-mark level for the first time, falling to a record 1.7980 marks at one point before recovering slightly on profit-taking and possible central bank inter-

vention.

The dollar had closed at 1.8062 marks in London before the weekend. Until Monday this was its lowest price against the West German currency.

Last week was one of the worst of the longstanding dollar crisis and it saw the U.S. currency break several records in rapid succession as the dollar retreated to lower and lower levels against major European currencies.

Monday, the Japanese yen appeared to be catching up with the recent rise of the European currencies after several months during which the main pressure on the U.S. currency was on the dollar-Swiss franc rate rather than on the dollar-yen parity.

With the currency turmoil worsening and the dollar falling, the price of gold shot up to \$229 an ounce on the London Bullion Market—a rise of \$1.05 on Friday afternoon's price.

One of the main factors behind the dollar's fall on the world's foreign exchange markets in the past year has been growing international concern at America's rapidly rising inflation rate.

It is to tackle this problem that President Carter will announce new anti-inflation measures Tuesday, but the fall of the dollar Monday seemed to indicate that foreign exchange dealers did not expect the president would be able to come up with anything that would strengthen the value of the U.S. currency dramatically.

NEW YORK, Oct. 23 (AP)—The voluntary wage and price guidelines President Carter is expected to propose will not curb inflation in the U.S. a top economist from the previous administration has said.

Alan Greenspan, chairman of the White House's Council of Economic Advisers under former President Ford, also said Sunday the U.S. is likely to have a recession sometime in the next two years.

But Walter Heller, who was an adviser to Democratic presidents John Kennedy and Lyndon Johnson, disagreed as the economists appeared to-

gether on ABC's "Issues and Answers."

Heller said guidelines alone were not an answer, but added that "the president, if he does it right, if there's real conviction and clout to the program, could somewhat de-

escalate the rate of inflation." In rejecting the voluntary guidelines, Greenspan said he thought "the chances of them succeeding are nil, and what concerns me most is that it will further erode the credibility of the president, which is a very important ingredient in the long-term battle with inflation."

Abadan oil workers cancel strike

TEHRAN, Oct. 23 (AP)—Striking oil refinery workers at the Gulf port of Abadan agreed Sunday to return to work after the head of the national oil company promised their demands would be met.

Hushang Ansary flew

to Abadan early Sunday to negotiate with representatives of the 5,000 workers whose action threatened to block export of six million barrels of crude oil daily.

Ansary told workers the

company would meet their wage and benefit demands immediately but proposed a 15-day deadline for implementation of other changes, including the removal of the company's head of security.

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Market Comment

Special to "Arab News"

LONDON, Oct. 23 — The dollar started the week in slightly better form than it showed before the weekend. Initially the dollar continued on the downward path firmly established last week, with European markets taking their cue from the Far East, where the dollar had slipped to a new low against the yen of 181.00, compared with 181.90 at Friday's close, despite substantial intervention by the Bank of Japan.

European central banks also came into the market in the morning and this time the dollar support operation bore some fruit. The dollar erased its early falls and by lunchtime was standing above Friday's closing levels against all European currencies except the pound and the guilder.

Sterling, indeed, enjoyed a fair amount of demand, moving up to \$2.0095 and with its effective rate improving to 62.1, compared with 61.9 at the opening. This helped gilt edged securities in London to recover some of the ground lost early on but equities were dull, with the noon FT Index just over 4 points down at 496.1.

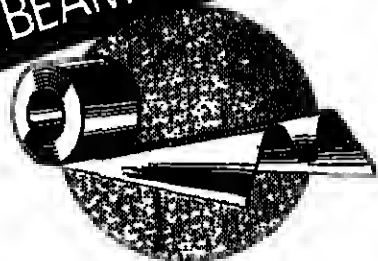
Friday, however, had been a very bad day for U.S. financial markets. They spiralled downward throughout the day in unusually heavy trading for the end of the week. The dollar's effective depreciation widened out to a record 11.2 per cent in very unsettled market conditions. The pound came under quite heavy pressure, too, and it is believed that the Bank of England had to support the currency around mid-day. The Eurodollar Market had its worst day so far this year as the pressure of a collapsing currency and rising interest rates sliced into prices, particularly at the shorter-dated end of the market. Experts suggest that his move is only a catching-up process on the relative decline of medium and long-dated issues that has been evident for some time.

FOREIGN EXCHANGE RATES

Opening Monday	Cash	Transfer
U.S. Dollar	3.33	3.32
Pound Sterling	6.68	6.68
Deutsche Mark (100)	183.00	184.00
Swiss F (100)	221.00	221.00
French F (100)	79.00	79.50
Italian Lira (1000)	4.10	4.10
Lebanese Lira (100)	112.75	112.50
Syrian Lira (100)	82.75	85.50
Egyptian Pound	4.70	4.77
Kuwaiti Dinar	12.30	12.35
Jordanian Dinar	11.20	11.25
Emirate Dirham (100)	86.00	86.10
Qatari Riyal (100)	86.00	86.10
Bahraini Dinar	8.60	8.61
Iraqi Dinar	10.25	—
Iranian Riyal (100)	46.00	46.50
Yemeni Riyal (100)	73.25	73.25
South Yemeni Dinar	—	—
Moroccan Dirham (100)	78.50	84.50
Indian Rupee (100)	—	41.80
Pakistani Rupee (100)	—	33.75
Gold kg	24,300	—
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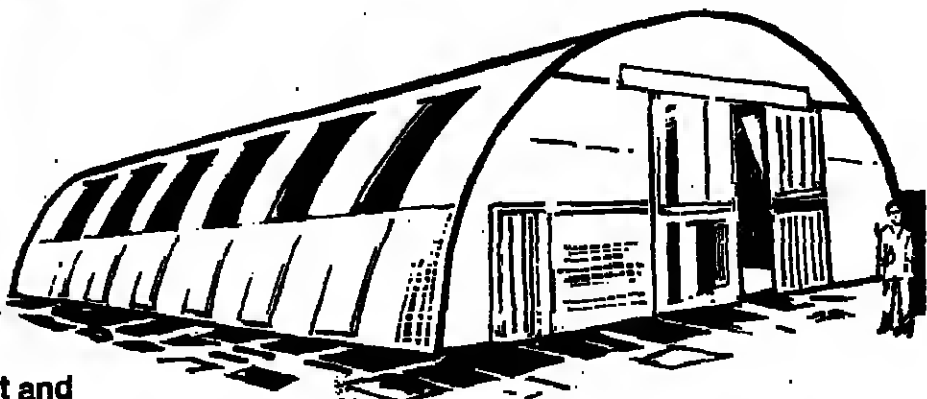
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Shell to raise purchases of Kuwaiti crude

KUWAIT, Oct. 23 (R)—The Shell oil company has agreed to increase its purchases of Kuwaiti crude oil by 50,000 barrels a day over the next three years to average 360,000 barrels a day, oil ministry officials said here Monday. An agreement to this effect was signed here Sunday, renewing a previous three-year agreement.

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Saints upset Rams, 10-3, on last-minute TD pass

NEW YORK, Oct. 23 (AP) — Archie Manning hit Tony Galbreath with a 19-yard touchdown pass with 2:28 remaining as the New Orleans Saints upset Los Angeles, 10-3, Sunday to knock the Rams from the National Football League's unbeaten ranks.

That leaves the Pittsburgh Steelers as the NFL's only undefeated team. The Steelers were to play host to the Houston Oilers Monday night.

New Orleans was only one of seven upset winners Sunday. In the day's other big surprises, the Seattle Seahawks beat the Oakland Raiders, 27-7, and the Baltimore Colts edged the Denver Broncos, 17-6.

In other form reversals, the Detroit Lions beat the San Diego Chargers, 31-14, the Kansas City Chiefs defeated the Cleveland Browns, 17-7, the Tampa Bay Buccaneers outscored the Chicago Bears, 33-19, and the New York Giants topped the Washington Redskins, 17-6.

Meanwhile, controversy concerning Tony Dorsett, Dallas' stellar running back, overshadowed the Cowboys' 14-7 victory over the Philadelphia Eagles. Dorsett was benched

by coach Tom Landry for missing a practice session on Saturday.

The Saints scored their game's only touchdown by going 69 yards in seven plays after a razzle-dazzle pass attempt by Los Angeles punter Glen Walker was intercepted by New Orleans cornerback Eric Felton.



L.A.'S WALKER: Botched pass

Manning hit Henry Childs for 17 yards. Ticker Owens for 7 and Childs again for 8, with a 15-yard roughing the passer penalty against Rams defensive lineman Cody Jones tacked on the end to move the ball to the Los Angeles 19.

On the next play, Manning hit Galbreath with the game-winning pass.

Seattle picked off four Ken Stabler passes and turned three of them into scores in beating the Raiders. Stabler has now thrown 19 interceptions in eight games. Despite the loss, the Raiders remained tied with Denver at 5-3 atop the American Conference's West Division, since the Broncos also were beaten.

Bill Troup passed 19 yards to Glenn Doughty for a second-quarter touchdown. Tom Linhart kicked the extra point and Baltimore's Mike Barnes blocked Jim Turner's try for a third field goal of the game as the Colts defeated Denver.

Gary Danielson fired three touchdown passes, two to rookie wide receiver Jesse Thompson, and the Lions scored the first four times they had the ball and upset San Diego.

Arnold Morgado scored on touchdown runs of 8 and 2 yards as the Chiefs snapped a six-game losing streak by beating Cleveland.

Rookie quarterback Doug Williams passed for two touchdowns and ran for another, helping the Buccaneers deal the



SINGLE TOUCHDOWN: Archie Manning (8) capped a 69-yard New Orleans advance to seven plays with a 19-yard pass for the Saints' game-winning touchdown against the Rams Saturday.

Bears their fifth straight loss. Joe Pisarcik passed 43 yards for one touchdown, then set up his 3-yard scoring run with a 46-yard flea-flicker to lead the Giants over the Redskins.

The Dallas Cowboys, with Preston Pearson starting in place of Dorsett, moved into a tie with Washington for the National Conference's East Division lead by beating the Eagles. Dallas got both its touchdowns in the second quarter, Robert Newhouse scoring on a one-yard run and

Roger Staubach hitting a diving Drew Pearson from 11 yards out for what proved to be the winning margin.

Elsewhere, Frank Tarkenton fired three touchdown passes as the Minnesota Vikings kept their hopes for a division title alive by beating the Green Bay Packers, 21-7. Tarkenton completed 26 of 43 passes for 262 yards and surpassed the 45,000-yard mark for his career as the Vikings, 4-4 pulled within two games of the Packers, 6-2, in the NFL Central Division.

cord, and in cross-country, in which she is the women's world champion.

Last The last of the estimated 8,500 finishers crossed the line five hours after Rodgers had made his way through walls of clapping and shouting spectators.

The bleachers were all but empty when Heft's Carla Graeffler, 25, of New Jersey, in green shorts and a blue T-shirt came in. Alone at the end, she had walked many of the last miles.

Bucks sink tie-breaking basket after time out to edge Warriors

NEW YORK, Oct. 23 (AP) — Milwaukee's Marques Johnson sank two points in the final quarter, but he never would have had that chance if it hadn't been for Brian Winters.

The score was tied 107-107 in the Milwaukee Bucks' national basketball association game with the Golden State Warriors Sunday night when Winters blocked a Warriors shot. The Bucks got the ball and after a time out with one second remaining, set up a winning basket by Johnson.

Before that, Winters scored 37 points, including seven straight baskets that accounted for all but of Milwaukee's points in the last 6:45. The other basket was Johnson's shot that gave the Bucks a 109-107 victory.

Elsewhere in the NBA, Los Angeles defeated San Antonio, 134-121, and Phoenix outlasted Portland, 124-116.

The Lakers won their first game of the season in their home opener after three road losses. Adrian Dantley had 30 points and Kareem Abdul-

Jabbar scored 27, grabbed 15 rebounds, had nine assists and blocked four shots.

Walter Davis and Paul Westphal combined for 48 points as Phoenix handed injury-riddled Portland its fourth loss in five games this season.

Davis had 28 points and Westphal added 20 for the Suns, while Larry Steele — in the starting lineup because of injuries to Maurice Lucas, Larry Gross and Lloyd Neal — led all scorers with 29.

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Favorite leads 8,500 home in steamy N.Y. marathon

NEW YORK, Oct. 23 (AP) — Unflappable Bill Rodgers, maintaining a torrid pace despite unseasonable heat, won the New York City marathon Sunday for the third consecutive year while Greta Waitz of Norway set a women's world record for the marathon.

Rodgers, 30, of the United States, was timed in 2 hours, 12 minutes, 12 seconds, about four minutes above the world mark of 2:08.34 set by Derek Clayton of Australia in 1969 in Belgium.

Rodgers, running the slowest of his three New York City marathons, said that because of the heat — an unseasonably high 72 degrees — the pace set by Garo Bjorklund should not have been so fast.

"I would not have pushed this hard, if I wasn't pushed," said the 30-year-old Rodgers.

After the grueling 26-mile, 385-yard race, which attracted an oversized field of some 11,000, Rodgers was limping, the result of an injured left arch.

"But it held up, and that's the important thing," said Rodgers.

For the first five miles, he stayed with the early leaders then forged to the front at about the eight-mile mark, dueling with Bjorklund for the next seven miles, then pulled away to an easy victory. Ian Thompson of Great Britain the 1974 Commonwealth Games winner, finished about two minutes back behind.

First Waitz, 25 with pigtails, was making her marathon debut

Sunday and won the women's division in two hours, 32 minutes, 30 seconds — more than two minutes faster than the previous world best of 2:34.48, set last year by Christa Vahlensieck of West Germany and nine minutes ahead of runner-up Martha Cooksey of California.

"She's one of the best distance runners in the world, she has tremendous talent," Rodgers said.

But Waitz' best distances have been at 3,000 meters, in which she holds the world re-

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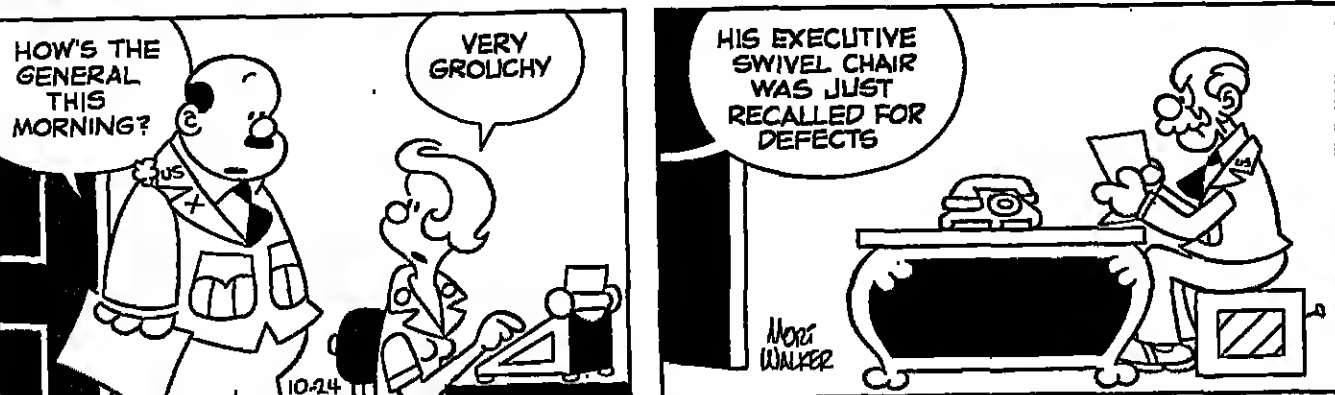
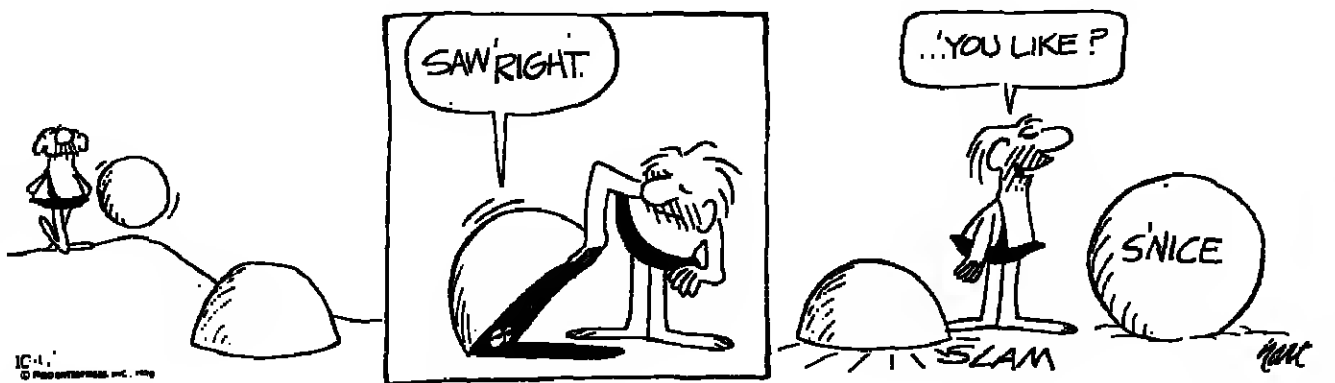
SMALL SOCIETY

BLONDIE

BETTY BAILEY

HAGAR

WIZARD



Dennis the Menace



CROSSWORD PUZZLE

Crossword

by THOMAS JOSEPH

ACROSS

1 Old Jewish month

3 Sacriligious site

5 Monster

8 Symbol of purity

11 Soldier of old

12 Distaff

13 Prophet

14 Anecdotal collection

15 Recipe, rule

16 Accord

18 Perch

19 Jazz great, Kiki

20 Galaxy

21 Carpet surface

22 "Lull" composer

24 Coating

25 Declare

26 Fellow st.

27 Half-witted

31 Part of a trans-ist system

33 River, Sp.

34 Articular lady

35 Declaim

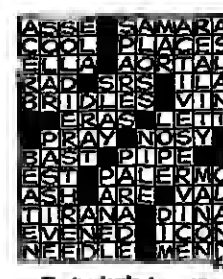
36 Pitched ball

37 Advantage

38 Spanish title

39 Decorative DOWN

1 Muslim deity



Yesterday's Answer

21 Paris

22 Establish

23 Big package

24 Teacher's

25 Teacher's

26 Teacher's

27 Teacher's

28 Teacher's

29 Teacher's

30 Teacher's

31 Teacher's

32 Teacher's

33 Teacher's

34 Teacher's

35 Teacher's

36 Teacher's

37 Teacher's

38 Teacher's

39 Teacher's

40 Teacher's

41 Teacher's

42 Teacher's

43 Teacher's

44 Teacher's

DAILY CRYPTOQUOTE - Here's how to work it:

AXYDLBAAXB

is LONGFELLOW

One letter simply stands for another. In this sample A is

used for the three C's, X for the two O's, etc. Single letters,

apostrophes, the length and formation of the words are all

hints. Each day the code letters are different.

CRYPTOQUOTES

KEYVUNO W VURK QUCK U

BGQTKY P PJVKY QWO

JURKO PE MVWL DPG VURK

BKHY VKUYC. - LAKQKBLKUG

Yesterday's Cryptquote: BELIEVE THE DOUBTER, AND

DOUBT WHEN YOU ARE TOLD TO BELIEVE. -LUDWIG

BORNE

Believe It or Not!



BENJAMIN BANNEKER
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Contract Bridge

B. Jay Becker

Inferences and Deductions

West dealer. Both sides vulnerable.

NORTH

♠ 8 5 4 2

♥ A Q 3

♦ 8 4 3

♣ 10 2

WEST

♠ K 10

♥ K 8 5 4

♦ Q 10 7

♣ A K J 8

EAST

♠ J 10 9 7 2

♥ 10 6 2

♦ 9 7 5 4 3

SOUTH

♠ A Q J 8 7 3

♥ 6

♦ A K J 5

♣ Q 8

The bidding:

West North East South

1 NT Pass 2♣ 2♦

3♣ 3♦ Pass 4♦

Dble

Opening lead - king of clubs.

Let's assume you're in four

spades doubled and West

leads the K of clubs, then

shifts to a low heart. How

would you play the hand?

At first blush, it seems you

should go up with the ace of

hearts. To finesse the queen

appears to be a foolish

gamble, because you have no

useful discard to make on the

ace of hearts after the queen

wins the trick. Furthermore,

you promised your grand-

mother many years ago that

you'd never take any useless

finesses!

Nevertheless, the fact

remains that if you do take

this seemingly unnecessary

finesse you are practically

sure to make the contract.

Let's suppose you decide to

finesse and then, after

discarding a diamond on the

ace of hearts, you ruff dummy's

last heart. You next play

the ace and another trump,

forcing West into the lead with

no place to go. He must either

concede a ruff and discard or

lead a diamond to your A-K-J.

Note that if you fail to play

the queen of hearts from

dummy at trick three, you

eventually go down one

against proper defense. You

lose a spade, a diamond and

two clubs.

It is not difficult to justify

the heart finesse once it is

granted that West opened the

bidding with a 16-to-18 point

notrump. There are only 17

points missing and they are

bound to include the king of

spades, king of hearts, queen

of diamonds and A-K of clubs.

This view is strongly re-

inforced by West's double of

four spades.

Therefore, from every

aspect, finessing the queen of

hearts is correct. It's not

because you need a discard,

but because it affords you an

opportunity to clear the

dummy of hearts and estab-

lish a position that

renders West helpless.

ARAB NEWS CALENDAR

PRAYER TIMES

TUESDAY

	Fajr	Ishraq	Dhuhr	Asr	Maghreb	Isha
Mecca	5:05	6:24	12:12	3:31	5:54	7:24
Medina	5:09	6:26	12:13	3:29	5:51	7:21
Nejd	4:36	5:56	11:40	2:57	5:19	6:49

DHAHRAN TV

3:30 Children's Show	CB Bears: Hard Headed
4:50 Jokers Wild	Hard Hat, Heavy
5:10 Wide World Of Sports	No. 508
6:02 Wahons	Acrobatic Water Ski
6:51 Wel. Bk Kotter	The Big Brother
	One Of Our Sweathogs Is
	Missing
7:25 Safety Film	Take Notice
7:26 Police Woman	Death Game
8:16 That's My Mama	Cliffons Big Move
8:41 Second Run	Baxter

WEATHER

Forecast for the next 24 hours:
The temperatures will continue to drop in the western and northwestern regions where surface winds will blow northwesterly at moderate speed. The eastern, central and northeastern regions will have southerly winds blowing at moderate to active speed and raising dust and sands occasionally.

Sea conditions will be moderate in the Red Sea and light in the Gulf.

Monday's temperatures (maximum, minimum in centigrade)					
Mecca	38	29	Taif	28	13
Jeddah	37	24	Tabuk	33	15
Riyadh	34	17	Jizan	36	27
Dhahran	35	20	Hail	32	17
Medina	36	24	K. Mesheh	25	04

SAUDI RADIO

Afternoon Transmission

2:00 Opening

2:01 The Holy Quran

2:05 Gems of Guidance

2:10 S.A. - A Daily Chronicle

2:15 Music

2:30 On Islam

2:45 Under the Limelight

2:55 Music

3:00 NEWS

3:10 Press Review

3:15 Music

3:20 Music-Machines

3:30 Close Down

Evening Transmission

10:00 Opening

10:01 The Holy Quran

10:05 Message to the Faithful

10:10 Light Music

10:15 NEWS

10:25 S.A. - A Daily Chronicle

10:30 Selection of Music

11:00 World of Machines

11:10 Press Review

11:15 The Stevie Wonder Story

11:45 Eminent Saudi Arabians

12:00 Islamic Contributions

12:15 In the Quiet

12:45 A Rendezvous with Dreams

12:59 Close Down

VOA

P.M.

8:00 News Roundup:

Reports: Actualities:

Opinion: Analyses

8:30 Dateline

News Summary

Special English:

News: Feature, The

Making of a Nation

News Summary

9:30 Music USA:

(Standards)

10:00 News Roundup:

Reports: Actualities

Opinion: Analyses

News Summary

VOA Magazine:

America: Science:

Cultural: Letter:

11:00 Special English: News

11:30 Music USA:

(Jazz).

VOA WORLD REPORT

Midnight

12:00 News... newsmakers'

voices... correspondents

reports... background

features... media com-

ments... news analyses.

BBC

Morning Transmission

8:00 World News

8:09 *British Press Review

2:30 *People and Folk

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PASSPORT LOST

Mr. Aldo Albanesi has lost his Italian Passport No. B-396809 issued from Questura Rome - Italy on 19.2.1978. If somebody finds it please contact: COGECO - P.O. Box: 2835 - Dammam - Tel: 28213 or Italian Embassy - Jeddah.

PASSPORT LOST

Indian Passport No. J-837057 issued at Madras to Mr. Mohammed Ismail Nizami has been lost. Finder please deliver it to Indian Embassy, Jeddah.

PASSPORT LOST

French Passport No. 017274 issued at Gex 01 on 20.1.78 to Mr. Abdoul Hamidou has been lost. Finder please deliver it to French Embassy Jeddah.

LOST

Iqama No. 5252 issued at Jeddah in the name of Mr. Mohammad Azizuddin (Indian National) has been lost. Finder please deliver it to Arabian Cement Company P.O. Box: 275 - Jeddah.

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PAGE 16

Late News

الطبعة ٢٢ ذي القعدة ١٤٠٨ هـ

But efforts will continue

No SALT seen after 2 days hard talks

MOSCOW, Oct. 23 (R) — The United States and the Soviet Union Monday ended two days of intensive negotiations without reaching agreement on the shape of a new strategic arms limitation treaty. A U.S. official said both sides had agreed to continue to exert all efforts towards achieving the signature of SALT-2.

And a Soviet report on the 11 hours of high-level discussion Sunday and Monday said there had been detailed analysis of the outstanding issues. The U.S. spokesman, Hodd- ing Carter said no announce- ment would be made of the next steps until Secretary of State Cyrus Vance, who headed the U.S. side at the talks in Moscow with Soviet Foreign

Minister Andrei Gromyko and President Leonid Brezhnev had consulted with President Carter in Washington. "I am in no position to suggest to you that we have an agreement," Carter told reporters after Vance had returned to the U.S. Embassy from a final 90-minute meeting with Brezhnev. The secretary of state felt the talks had been "useful and constructive," Carter added and that the atmosphere in the meeting had been "friendly and cordial."

A Tass news agency report of the meeting said the two men "stated their resolve to bend every effort and bring this important matter to a conclu- sion so as to ensure the early signing of an agreement." The U.S. said some problems remained to be resolved. Neither Carter nor the Tass statement referred to progress and the American spokesman said he was not authorized to use the word. Asked in whose court the ball now lay, Carter said: "The ball is between us."

The Soviet report said the two sides expressed their intention of facilitating progress in negotiations on other questions of arms limitations and disarmament with the purpose of reaching concrete agreements. Brezhnev noted the recent strains in Soviet-American relations and stressed that both countries would benefit by their being eased. Carter was unable to say whether a summit meeting between the two presidents was discussed, and it was his understanding that no decision had been made on holding another meeting between foreign minis- ters. Replying to a question, Carter said "we continue to hope an agreement is viable before the end of the year."

The secretary of state would be reporting to President Carter by cable later Monday night. Vance leaves Moscow Tues- day morning after his third trip to the Soviet capital in 18 months. Gromyko said at lunch that the talks had been useful and constructive—diplomatic terms usually indicating progress. "There remain open ques- tions, and this is not yet the end," he said. Hailing the improvement in relations, he added that he wanted to call special attention to Vance's important meeting with Brezhnev. Replying, Vance said there were still some unresolved prob- lems. "But we believe that there are no problems that cannot be worked out fairly and reason- ably, given good will and determination on both sides."

"We can take heart from the very substantial progress that is reflected in the joint draft text so far completed."

Aides converge for by-election

Jana ta firepower trains on Indira

NEW DELHI, Oct. 23 (R) — The Indian government is sending several senior cabinet ministers to the small south Indian town of Chikmagalur

Support Sarkis, say EEC aides

BONN, Oct. 23 (R) — Member states of the European Common Market Monday ap- pealed to all political groups in Lebanon to give their full support to President Elias Sarkis and his government.

A statement issued by the West German Foreign Minis- try on behalf of the nine EEC members said Europe welcom- ed the relocation of Syrian forces in Lebanon which fol- lowed last week's conference of Arab foreign ministers near Beirut.

The EEC hoped that all sides would observe the cease- fire and refrain from "every- thing that could be interpreted as a provocation."

The nine "appeal to all Lebanese to lend their full support to President Sarkis and his legitimate government."

This would be the only chance to maintain the unity, independence, sovereignty and territorial integrity of Leb- anon.

in an effort to prevent former Prime Minister Indira Gandhi being re-elected to parliament. Industry Minister George Fernandes is organizing the campaign against Mrs. Gandhi and he will be backed this week by Defense Minister Jagjivan Ram and External Affairs Minister Atal Bihari Vajpayee.

Vajpayee's appearance in Chikmagalur just a few days before he flies in Peking — the first visit to China by an Indian government minister in 18 years — emphasizes the im- portance attached to the Nov. 5 by-election.

It has become the focus of India-wide political activity as Mrs. Gandhi's return to par- liament, 20 months after her general election defeat, could pose a major challenge to the still deeply-divided ruling Jana ta Party.

India's parliamentary opposi- tion leader, C.M. Stephan, has challenged the government to accept the election as the peo- ple's verdict on Mrs. Gandhi's Emergency.

He has called on the govern- ment to drop all court proceed- ings and charges pending against the former premier if she wins the Chikmagalur seat. There has been no direct re-

ply in the challenge but Law Minister Shanji Bhushan told a weekend press conference that if Mrs. Gandhi won there would be a tendency to feel the people forgave her past lapses and mistakes.

Mrs. Gandhi's main oppo- nent is Former Karnataka State Chief Minister Veerendra Patil of Jana ta.

Mrs. Gandhi, 60, is fighting virtually alone on the campaign trail.

Turkish oil line expected to take week for repair

ANKARA, Oct. 23 (R) — The Iraqi-Turkish oil pipeline, ruptured by two explosions last week will take another week or 10 days to repair, in- dustry sources said Monday.

They said the cause of the explosions, which split the pipeline at two points and started a fire, was still being in- vestigated but sabotage has not been ruled out.

When the 1,000 kilometer line was hit by a similar explosion in July last year, a month-long investigation blamed sabotage.

Thursday's explosions were in the same area of Mardin Province in southeastern Tur-

key. When the blasts occurred, there were 298,000 tons of oil stored at the Turkish terminal of Yumurtalik on the Medi- terranean coast.

Several tankers have loaded oil since then, and officials here said the supply had prob- ably been exhausted.

Only a month ago, Turkey and Iraq reached agreement to resume oil supplies to this country through the pipeline after an eight-month gap caused by Ankara's oil debts to Baghdad, although the flow of crude destined for third countries had not been affected by the dispute.

Zambian president vents fury at U.S. 'cave-in' to Salisbury

LUSAKA, Oct. 23 (R)—Pre- sident Kenneth Kaunda Mon- day dealt a blow to Anglo- American efforts to set up Rhodesia peace talks when he angrily rejected an all-party conference along the lines agreed to last week by Rhode- sian Prime Minister Ian Smith.

"The British and Ameri- cans have caved in to Smith and Zambia will not partici- pate in this," he told a press conference that also included his first public reaction to last week's Rhodesian raids against black nationalist camps in Zambia.

Kaunda sharply criticized the United States and Britain for what he called their lukewarm responses to the raids, the deepest ever, into Zambia from neighboring Rhodesia, and for telling him afterwards that the attacks underlined the need for all-party talks.

While ruling out retaliation for the Rhodesian attacks, Kaunda singled out the United States for especially bitter criticism because Smith was visit- ing there when the raids started. "I shall not forget that Smith gave his orders to kill innocents from Washington."

Kaunda denied Monday that he was embarrassed by



Kenneth Kaunda

the ease with which the Rhode- sians took over the Zambian airspace for the raids, one on a camp only 20 kilo- meters from Lusaka.

"I am not a coward," he said. "If I sent to our boys to bomb Salisbury and Bulawayo I would be committing suicide for Zambia."

Saying Zambia was impos- sible to defend against an air attack, Kaunda exonerated his armed forces whose commander, Gen. Peter Zube, sat be- hind him at the press confer- ence.

His forces could not match the Rhodesian and South Af-

rican military machine but he pledged: "I am going to contin- ue to fight that man until he is uprooted."

Kaunda said he had been forewarned of the raids by his security forces last Wed- nesday, the day before they were launched.

Hussein calls on Arabs to rally to Palestinians

AMMAN, Oct. 23 (R) — King Hussein of Jordan Mon- day urged the Arabs to sup- port the inhabitants of Israeli- occupied territories until Is- raeli withdrawal.

He told a labor union con- ference here Jordao will not impose its will on them, but we should support them in their struggle and leave to them the freedom of positive political movement.

"Jordan will continue its dialogue with the world and will press with all means to achieve the Israeli withdrawal from all occupied Arab lands including Arab Jerusalem."

Lone pilot describes UFO before vanishing

MELBOURNE, Oct. 23 (AP) — Authorities were trying to determine Monday why a light plane vanished south of here after its young pilot radioed that a large object hovering above him was not an aircraft. Frederick Valentich, 20, was on a short solo flight from Melbourne to King Island across the Bass Strait when he disappeared Saturday evening. An oil slick has been spotted south of here.

Air traffic controllers on the mainland reported he radioed a little after 7 p.m. that he could see four bright lights about 1,000 feet above him that appeared to be the landing lights of a large aircraft. He asked whether any military aircraft were in the area and was told there were not.

Two minutes later, he radioed: "It is approaching from due east toward me. It seems to be playing some sort of game..."

At 7:09 he radioed "It is not an aircraft. It's..." and radio contact was lost briefly.

"It is flying past. It is a long shape. I cannot identify more than that. It's coming for me right now," he said.

At 7:10 he said: "It seems to be stationary. I'm orbiting and the thing is orbiting on top of me also. It has a green light and a sort of metallic light on the outside."

His last words before radio contact was lost permanently were: "It is not an aircraft." Air traffic controllers reported they then heard a noise on the radio.

Valentich's parents said they believe their son was seized by an Unidentified Flying Object. They discounted a theory raised by some that he had turned the plane upside down in the dark or into a steep bank and saw the reflection of his own lights in the water.

From page one

Iran

of political prisoners staged demonstrations in three Teh- ran campuses at the week- end.

The government announced Monday that 1,451 prisoners, more than 1,120 of them be- lieved to be political detainees would be freed Thursday to mark the Shah's 59th birthday.

High school students, res- tive for the past two weeks

Kingdom

would attend an Arab summit if it were staged at the Arab League headquarters in Cairo. Gulf diplomats said Monday that most Arab states were un- willing to go to Cairo for a summit as this might appear as an endorsement of Egypt's peace policies, which are treated with reservation by virtu- ally all Arab countries.

A Cairo summit would au- tomatically exclude the five members of the radical "stead- fastness front" — Syria, Al- geria, Libya, South Yemen and

over political demands includ- ing an end to martial law, boy- cotted classes and demonstra- tions in several of the capital's schools Monday.

Some anti-Shah street de- monstrations were broken up by police, without any casual- ties reported, and several stu- dents were arrested.

In the western city of Ha-

the Palestine Liberation Or- ganization (PLO).

The diplomats said conserva- tive Arab states would ideally still like to bring Egypt and the front states together.

But in the absence of such a rapprochement they were un- willing to appear anti-Egyptian as they wished to encourage Egypt in pursuing its insistence at the Washington talks on linking an Egyptian-Israeli agree- ment with progress towards a general Arab-Israeli peace, the diplomats said.

madan, where at least seven people were killed Sunday in day-long clashes between troops, police and demonstra- tors, shops and schools were closed Monday in protest.

Authorities denied a report from Paris quoting a spok- esman for exiled religious leader Ayatulla Khomeini saying about 40 persons died in the Hamadan clashes.

At least 1,000 persons have died during anti-government demonstrations throughout the country this year.

"We have been in telephone contact with the area and the information we received was that between 30 and 40 per- sons were killed Sunday up to 1800 local time," Khomei- ni's spokesman said.

Cabinet

fairs, Prince Majed the Cab- inet decided that he should chair a committee to look into the cost of the project to transfer embassies from Jed- dah to Riyadh.

The Cabinet also endorsed the agreement on economic and technical cooperation between the Kingdom and Bang- ladesh and entrusted the Mi- nister of Finance and National Economy Sheikh Muhammad Abu Al-Khalil to sign it on be- half of the government, Dr. Yamani added.

Furthermore, the Cabinet approved the setting up of the Thadeq Electricity Company, a joint stock Saudi concern, in accordance with the corporate law.

Assad

Iraq had called for the estab- lishment of a fund with the help of Arab oil producing countries to persuade Egypt to disassociate itself from the Camp David agreements.

It also urged Arab support for Syria and announced it was ready to send Iraqi troops to its neighboring state to help it face Israel.

The state-run Damascus Radin said Monday President Assad's planned trip to Iraq is part of efforts being made by Syria to consolidate Arab ranks in facing the Zionist chal- lenge and capitulationist de- signs."

Sources in Damascus said the ideological differences that have led to the political rift be- tween the two Baathist countries

will not be discussed in the hope that they will be settled automatically as the two states coordinate their anti-Camp David policies.

Egypt

other agreements reached at the Camp David summit between Begin and President Sad- dat.

The Israeli cabinet could not start its session until Mon- day night because of a Jewish religious festival that ended at sunset.

Meanwhile, the Security Council was called into ses- sion Monday to approve a nine-month extension of the mandate of the U.N. Emer- gency Force in Sinai.

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Jubail and the changing social chemistry

Perhaps more than any other Saudi town, Gulf coastal Jubail, 80 kilometers north of Dammam, provides the microcosmic key to decoding the massive changes sweeping this peninsula.

For, submerged in the alphabet soup of industrial logos like SABIC, SATOL, SABCO and SCECO is a potent social chemistry. First envisioned a decade ago to increase the export value of the Kingdom's hydrocarbon resources and diversify its economic base, the project's scope is staggering.

Over the next 10-30 years a small army of 20-50,000 workers will transform a placid fishing port of 3,000 into a 30 kilometer industrial city of 400,000 inhabitants.

The initial effects of this \$9 billion enterprise are already visible. Foreigners outnumber Saudis five to one. Jubail's balmy tranquility is shattered daily by the rumble and roar of harbor blasting, cargo convoys, cement mixers, jackhammers and a raucous mixture of foreign tongues. Steel-beamed, apparently removable, bousing units outflank the original town of solid, mud-brick homes. The crenellated tops of some of these latter edifices are dwarfed by construction scaffolding, 100-ton cargo lifting cranes and the modern architecture of the new Jubail Hotel. Stately dhows — symbols of a once viable pearl and fishing industry — tug and shudder at their moorings as dredgers' dynamite rocks the harbor.

This is only the first stage, creating an infrastructure: Ports for bringing in construction materials, roads for linkage, desalination plants for drinking water and workers imported by the thousands. The physical changes have been rapid and massive. In just three years temporary fly camps were replaced by California-style housing compounds. Sleek supermarkets surround the old souq. The population is growing prosperity is in the air and the original inhabitants don't seem to mind it.

"I've invested the money the government gave me for my land", states Abdullah Ahmad,

"and I hope to build some stores soon." Others, former fishermen, plan to purchase new fishing fleets and return to the sea when the proposed fishing harbor, quays and wholesale seafood market are completed. The purchased land was needed for the industrial complex and owners claim that the government paid "higher than top prices", enabling many to begin new livelihoods.

Down at the Jubail Restaurant — one of many new establishments catering to the foreign influx — the talk is of low bids, specifications, joint ventures and inter-corporate politics. The gossip — over westernized kebabs — flows in Arabic, English, German, Dutch and Korean among other tongues.

Only five years ago the 'news' was of a different sort: the rapid decline of the pearling industry, plunging fish prices and the exorbitant price of a good she-camel. Fears that the impending transformation of their town would replace traditional values too quickly were also voiced. Mubammad Jemeb, "We are still frightened of this", he remarked, "but now that it is happening, it does not seem so bad. It is still our village. We think the old ways, if they were good, will be kept even if the town itself changes."

He cites the Royal Commission's plans to rebuild the old fishing industry and its desire for the town ultimately to emerge as an attractive Saudi community as indicative of government concern. "Don't forget", he adds, "we here in Jubail have always been traders. Some of the largest and richest pearling boats came from this area. Now we trade in TV's, food and other goods. We've changed our business but you see us still praying five times a day."

The 'news', traditionally transmitted orally from village to village, still travels fast. Down at the new fishing harbor this day it concerns figures released in the UAE's Abu Dhabi showing that country's foreign workers outnumber citizens by 18-1. The implications are obvious for Jubail,



Jubail entrance sign marks site of future multimillion riyal petrochemical and industrial complex that will transform the small community into a city of 300,000 in the next 15 years.

but no one seems worried. "There is no trouble between the different peoples here", a local merchant asserts. "Jubail has always been a port with outsiders coming and going."

Maybe now they come and go a little faster, he laughs, but we all have jobs to do. When their jobs are done, they will want to go home, naturally, just as we want to stay. What

is the problem?"

Others are less certain. A university student, home for the long summer vacation said: "What is happening here is happening everywhere in the

area. In Jubail it is more obvious because of our isolation, small population and the bigness of the project."

He called the oft-expressed desire of many men to return

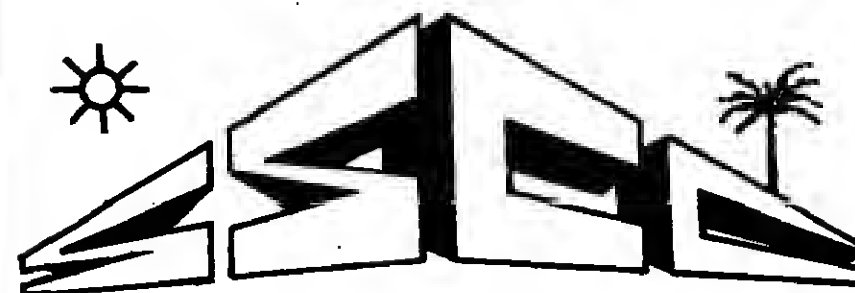
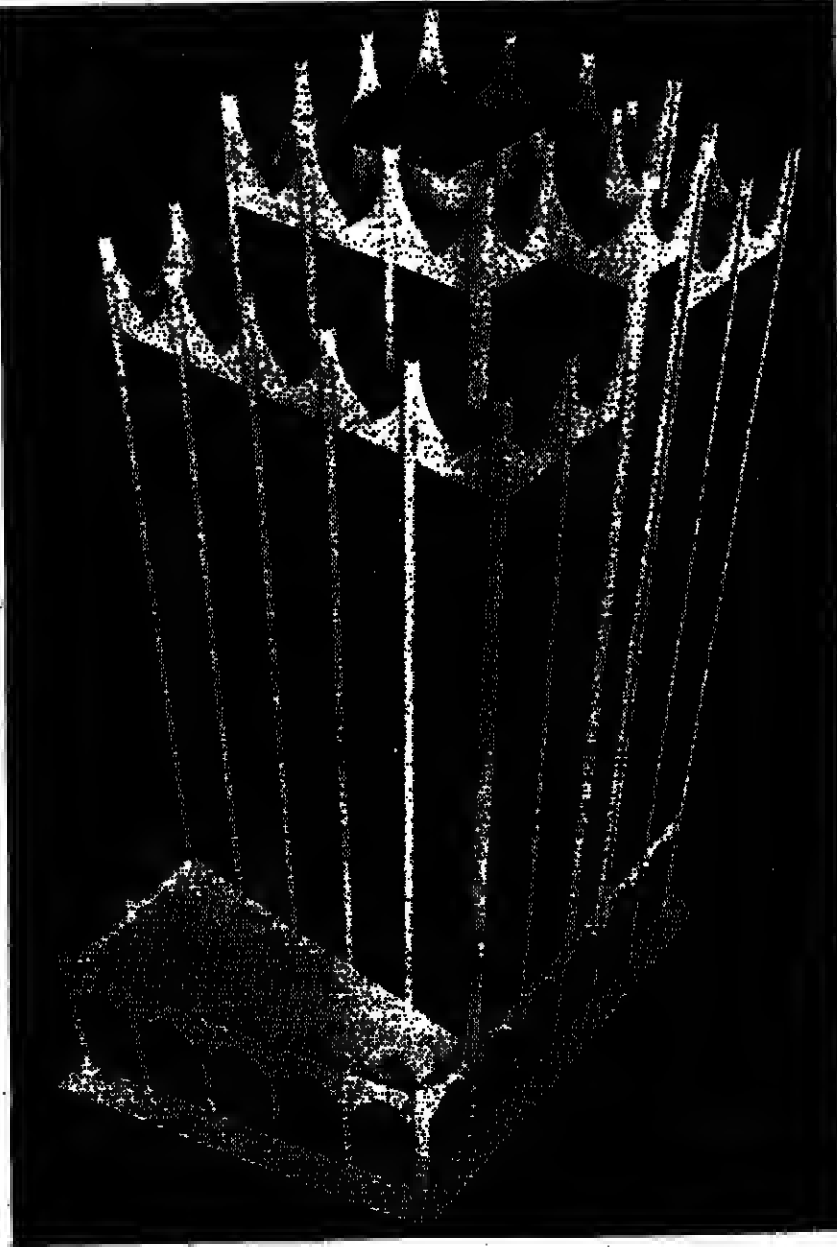
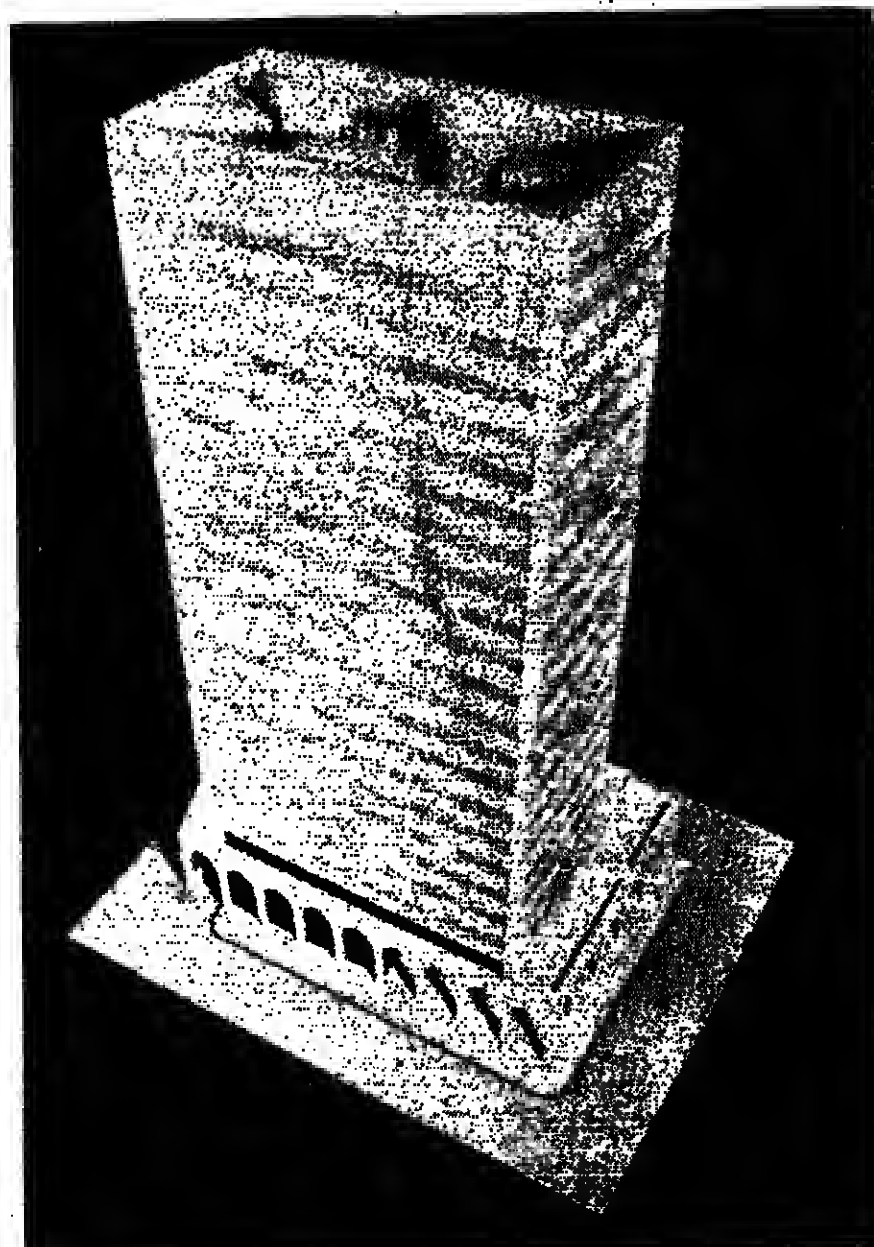
to the sea, "old men's dreams", and continued: "Even if they do that, after all these changes, they won't be going back as fishermen, but as tycoons. The attitude is different."

"On the other hand", he added hopefully, "our people are strong and stubborn. If they don't like something, you will know it soon enough."

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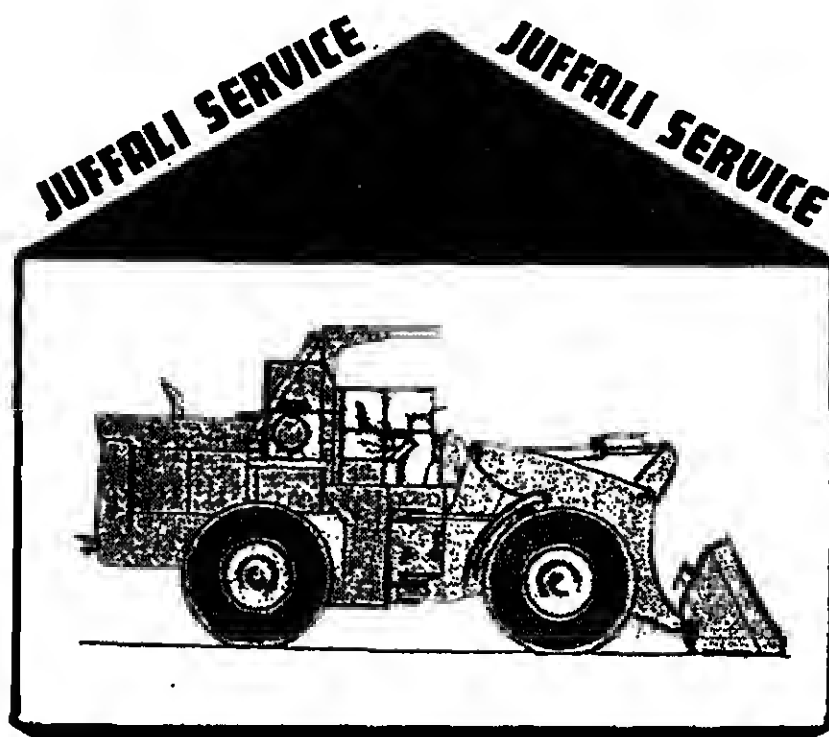
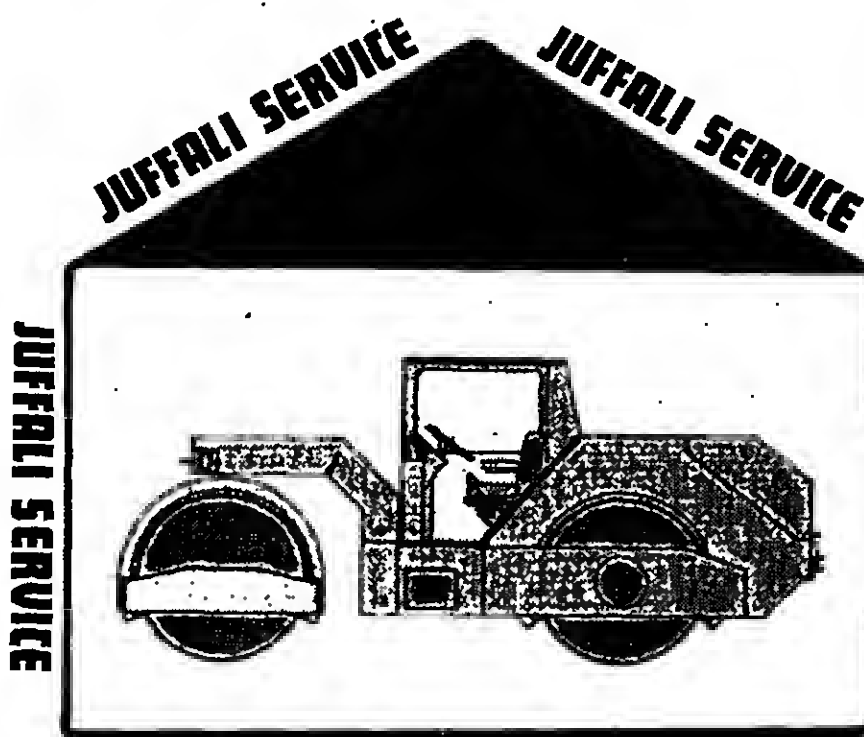
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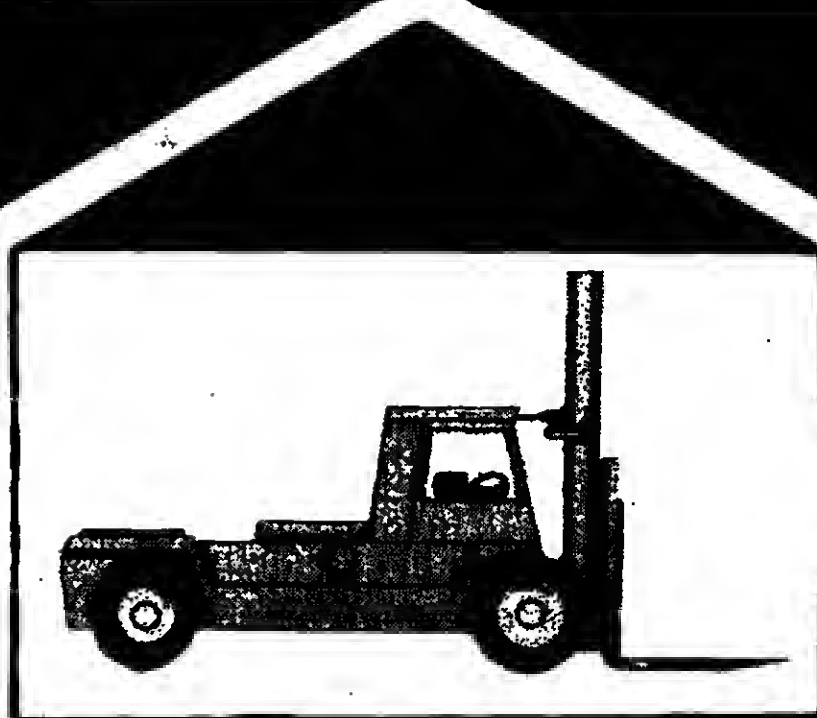
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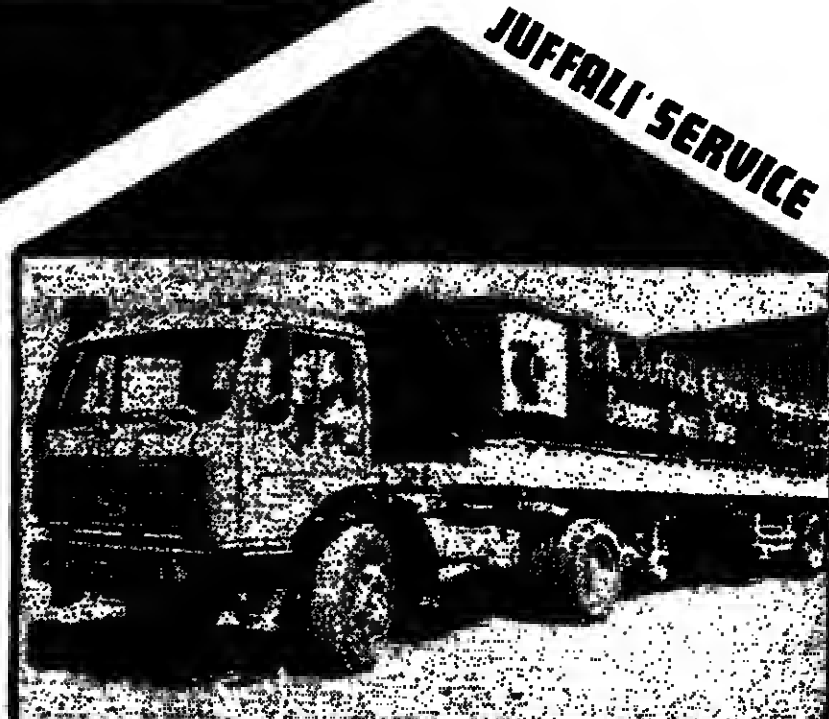
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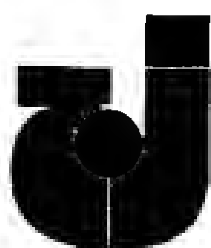
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Urbanization: One of the changes the Jubail project will bring to the area.



Profile of a participant

Three years ago certain engineers at the Henry C. Beck construction company of Los Angeles had to look up Dhahran on a map to be sure exactly where it was.

Today, however, a blue "B" logo adorns cranes and buildings under construction at a variety of sites throughout the Eastern Province, and Beck-Arabia is one of the fastest-growing organizations of its kind in the Kingdom.

In Al-Khobar they are putting the finishing touches on Fluor's Gulf headquarters, the tallest building in the Eastern Province. In Dhahran they are building five multi-story buildings with 1,235 apartments for Aramco single status employees, and in Doha North a new Marriott hotel. A Beck-Arabia crew has worked to set up the first of The Souks chain of shopping centers (see Saudi Business, September 21-27) in record time, and at Aramco's desert camp of Udhayyah, they are building an entire community — houses, schools, even a playable asphalt golf course, the first such links in Saudi Arabia.

The Beck-Arabia success is the story of more than one company in 1978, and echoes some of the trends and problems many construction firms experience in the area.

The tale starts in August, 1975, when Sheikh Ahmad Juffali of the E.A. Juffali and Brothers commercial organization went to the States. Juffali was looking for a company to build him a single modern facility in Dammam where Arab and Western executives and their families could live, shop and conduct business. In Dallas the Saudi businessman met Henry C. Beck, and the Beck-Arabia joint venture was conceived.

Because Henry C. Beck company itself was a well-established organization with a large network of employees, it was able to mobilize quickly, and within six weeks had its first detachment of eight employees with their families in the Kingdom. The engineers were raring to go, but nature and the characteristic terrain of the eastern littoral forced a slow start; over two months passed before all the water could be pumped out of the Dammam site and a proper foundation started.



SOUK PROJECT
FRONT VIEW OF BUILDING B
JULY 1, 1978

Souk Project being carried out by Beck Arabia

"They had to learn the hard way," says a Beck man who recently came to the Eastern Province. "You can have the best equipment in the world and the most efficient organization, but until you show up on a site for the first time you can't know exactly what to expect."

This must be doubly true for the Eastern Province, where the surprising extent of sand, sabkha and lack of water have stymied more than one ambitious project. But the new company proceeded until today, when Juffali's 12-story Dammam Tower stands elegantly on First Boulevard near the football stadium. Apartments have been furnished and rented, the pool filled, prospective managers are standing in line for the job of handing the building's 400 square meter supermarket, and tenants drink sweet water from the building's own reverse osmosis system. And in an area with its share of quick-built concrete boxes, the soft stucco and clay-colored face of the tower is an architectural delight.

When they started the Juffali Tower project, Beck planners

roo into the same blind spots that plague other construction companies new to the area. They did not know what materials and finishing supplies were available; so they ordered everything down to simple metal hangers from home. Now Beck is completely acquainted with the local market in construction materials, of course, and in fact many more locally manufactured items are available today than there were then.

Yet some construction men feel certain items from home make the job quicker and more efficient.

"We are investing the money to bring the latest techniques to our Saudi Arabian operation," says one company officer. "For instance, in the States there is better quality control of pre-fabricated electrical equipment so we make it there and ship it. On the site we make three connections instead of 35."

Bill Holley, president of Beck Arabia, says the company doesn't assume an extra-long construction time table in order to allow for delays in supply

and other local hazards, but is "committed to U.S. schedules."

This is not naive, but ambitious, he claims, emphasizing the firm's use of a "flying form system" which eliminates the time-consuming and labor-intensive aspects of getting the basic structure built. The U.S. parent company is using the same system now on a major building project in Dallas.

In many ways the flurry of building activity which was at its height when Beck first came to Arabia has tapered off, but this doesn't show in the company's list of prospective projects, or in the decision to open a new office in Riyadh. Like other companies coming in at this time, Beck realizes that construction money is still there, but that a commitment must be made to the long haul, and to a different kind of building than much of what has gone before.

"The Kingdom has built or is building its offices, hospitals and hotels and rapid housing developments," he says. "We, and others, can build what is needed now—services and support to the infrastructure."

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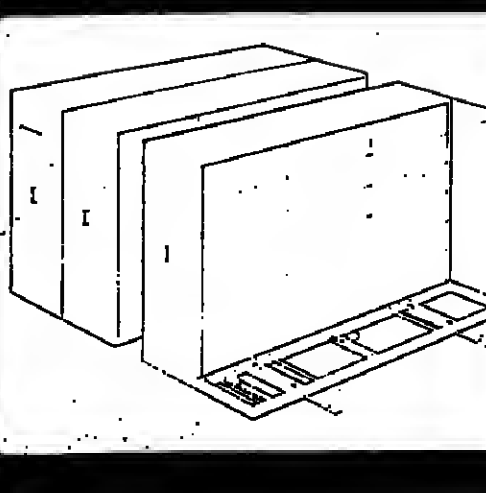
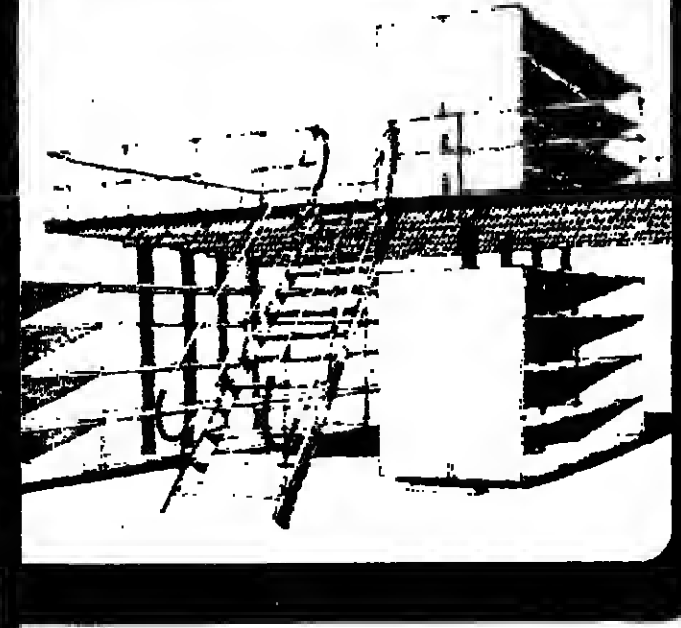
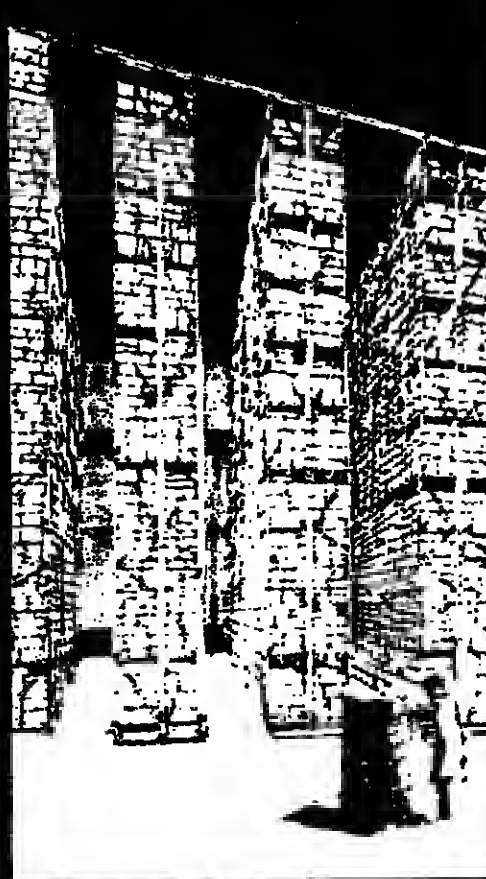
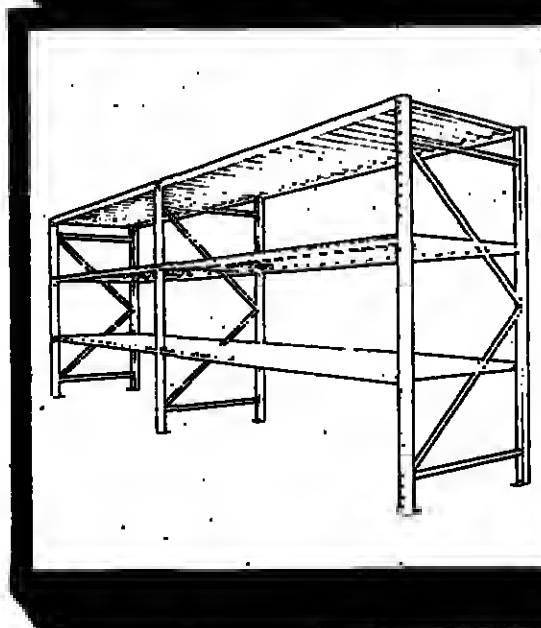
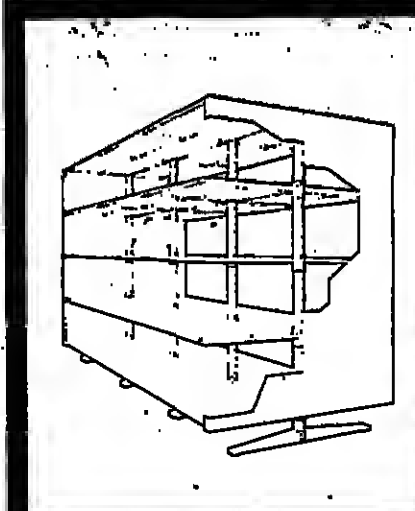
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Timber importers in tight position

By John Cluse

Timber importers in Saudi Arabia are finding themselves in an awkward position. Demand is burgeoning. Profits are declining. Forced to sell at purchase price for the past six months, they see themselves as victims of forces beyond their control. Says one importer, "If things don't change soon, the small to medium-sized warehouses and commission agents will have to go out of business. Only the giants can afford to keep going."

The dollar is often cited as the most voracious termite but Europe's economic blight also comes in for a share of the blame. The high cost of labor at European mills, the dwindling supply as forests are denuded and the hoarding of what can only become a more valuable resource are some of the constraints cited. Several lumber agents predict a 10 to 15 per cent rise in the price of imports over the next 90 days.

That price has been rapidly climbing for the past six years and shows no signs of stabilizing. In 1973, Jeddah importers were paying \$80 per cubic meter. It doubled in one year and in 1975 reached \$170, then shot up again in 1976-77 to between \$195 and \$220 per cubic meter.

Saudi Arabia's timber expenses increased by SR34 million in two years, from SR18 million in 1974 to SR52 million in 1976. Importers estimate today that between 40,000 and 60,000 cubic meters per month come into Jeddah port, the source of supply for the Western Province.

Singapore, the outlet for Malaysian and to a lesser extent Indonesian timber, supplied SR16 million in 1974. In 1975, when total imports remained at SR18 million, Sweden entered the market and sold SR2.8 million worth of timber, shaving Singapore's share to SR10.1 million. In 1976, Sweden claimed SR18 million, leaving Singapore in

the dust with SR9.6 million. These two still dominate the market, although Saudi Arabia imports from a number of other countries.

White wood, used for construction, is mostly spruce. Austria is the major supplier, though it funnels timber from other central European countries such as Hungary, Czechoslovakia and Yugoslavia. Romania is the second most important source of white wood. Timber in both Austria and Romania is graded on a scale of three with 0-3 the best and 0-5 the rubbishy wood. Most central European white wood imported into the Kingdom is 0-4 grade.

The United States, via South Korea, is an important source of another popular white wood, hemlock. It is shipped to South Korean mills for processing and then exported to Saudi Arabia.

Of the red woods, used primarily for window framing and finishing, Douglas fir, red spruce and pine are the most common Saudi imports. Sweden, is the main source of supply, with 1-4

the highest grade and 1-6 the rubbish. Eighty per cent of its exports to the Kingdom are in the 1-5 category, and 20 per cent in the 1-4 bracket. Almost all of the timber is taken from southern Sweden, where the tree takes around 50 years to mature compared to the 85-year average farther north, where the wood is of a finer and, more expensive grain. Canada and Finland also export red woods to Saudi Arabia.

Malaysian reds, known as kirwing, are divided into three categories: ungraded wood, marketable reds, and selected timber. Such extremely expensive woods as mahogany and teak are in the latter category and take up the tiniest proportion of Malaysian exports. Ninety-five per cent of its exports to the Kingdom are in the ungraded bracket, which costs about one-fourth as much as the finest selected woods. Five per cent of the Malaysian wood in the Kingdom is in the marketable category. Malaysia is also an important source of semi-finished, moisture-resistant plywood used for roofing and small-scale construction.

The Al-Zaben Building Supplies Company has been importing timber for 25 years and now controls between 7 and 10 per cent of the timber market in the Western Province. The company started out as retailers, ordering small consignments and operating on a commission basis. In the early years, they moved between 500 and 1,000 cubic meters of timber per year. Riding the crest of the construction wave, they now turn over approximately 40,000 cubic meters a year. Their new warehouse has a maximum capacity of 10,000 cubic meters of timber and 18,000 tons of steel.

Despite their impressive record, the Al-Zaben brothers are seriously considering pulling out of the timber business. "Compared to steel, the lumber market is just not worth the time or the investment capital needed to keep our heads above water," Nabil Al-Zaben says. "There is extremely tough competition among the ten or so major importers and the literally hundreds of smaller commission agents and importers."

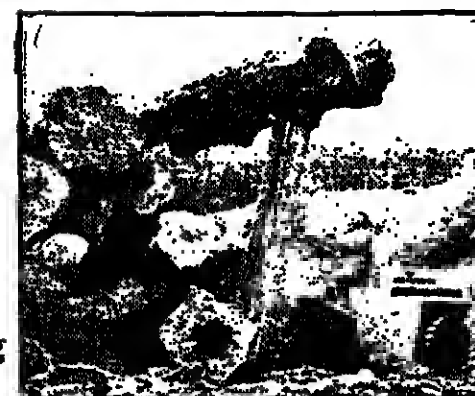
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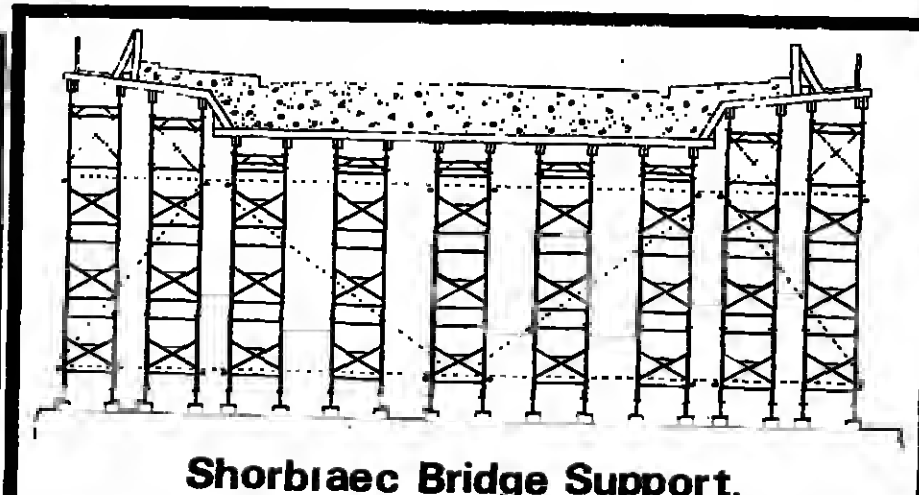
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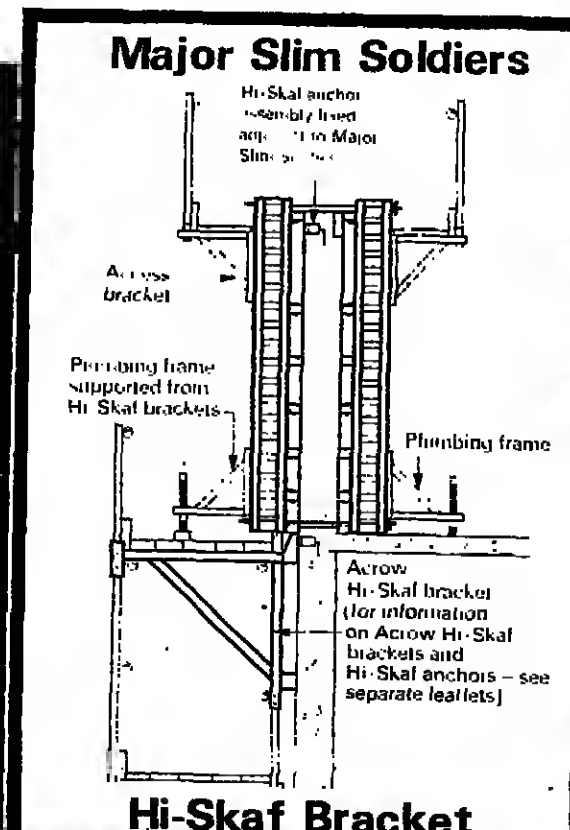
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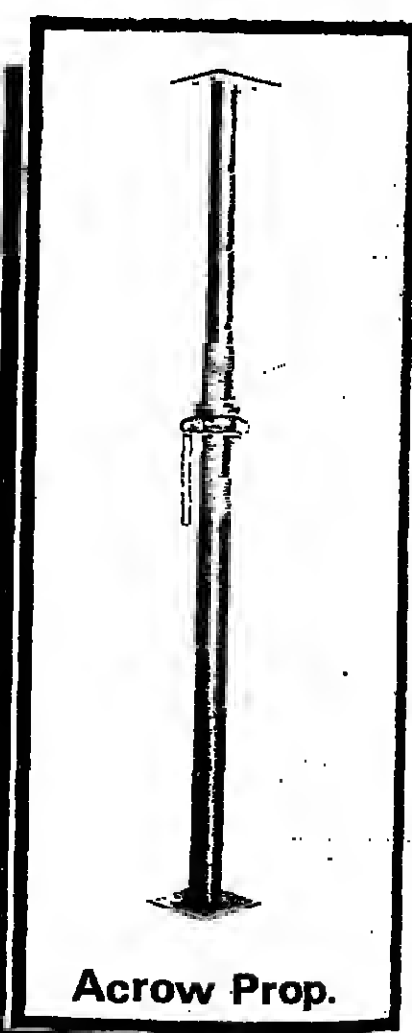
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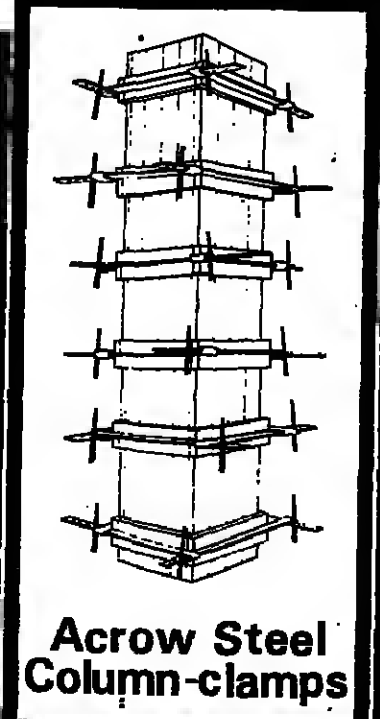
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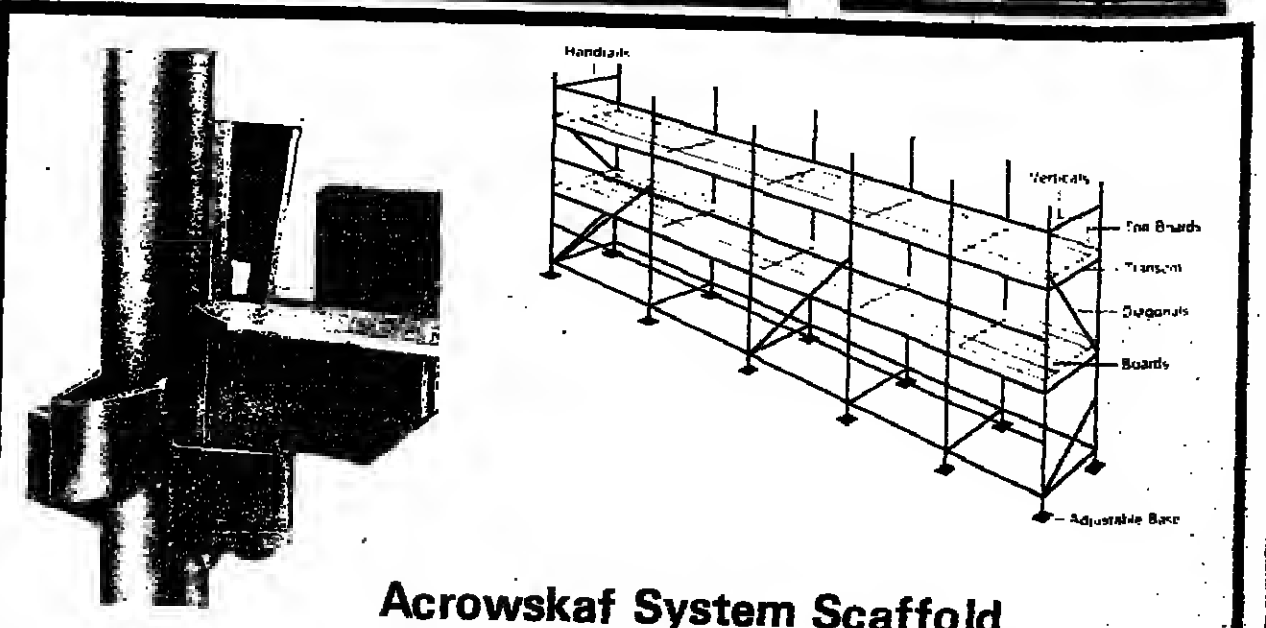
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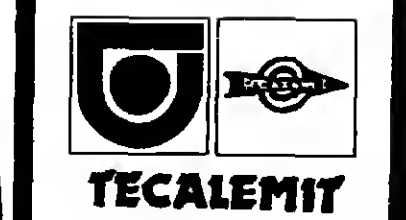
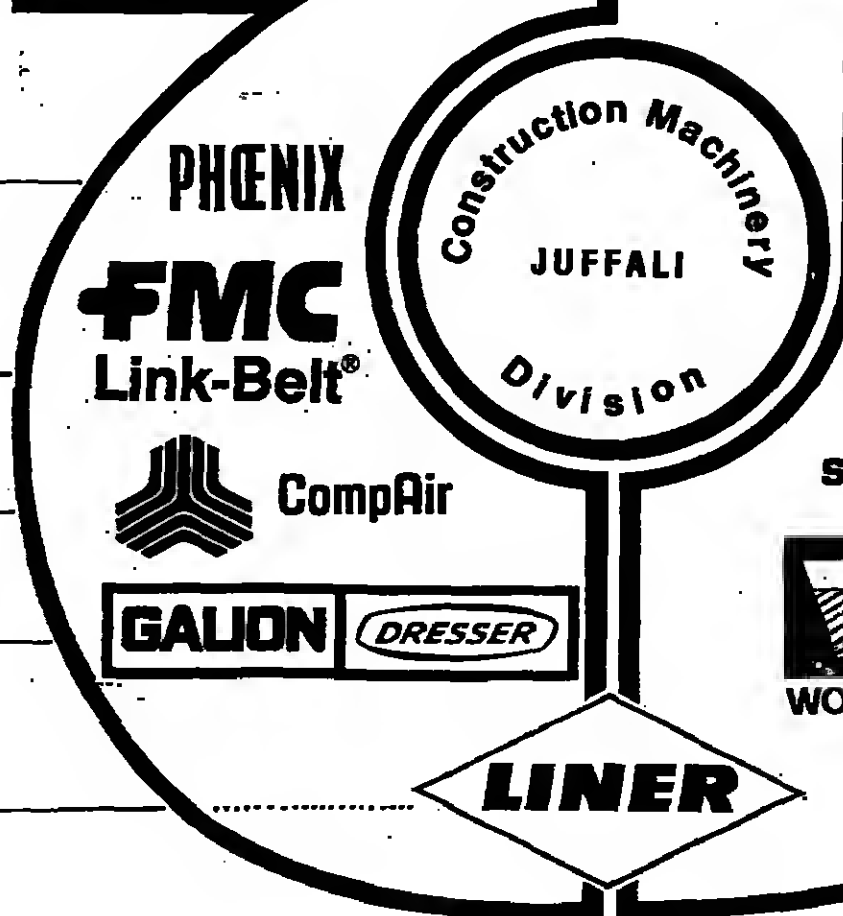
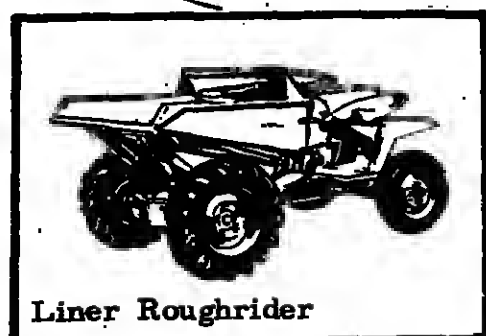
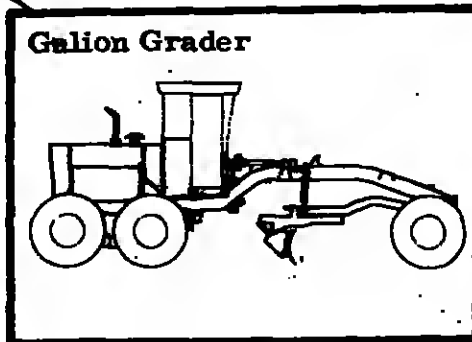
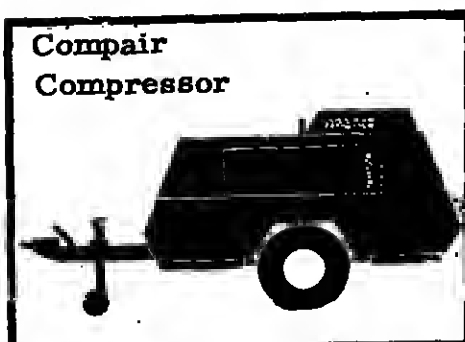
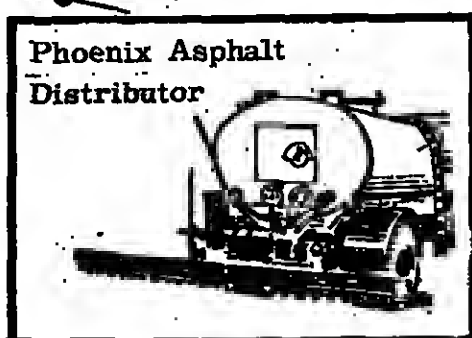
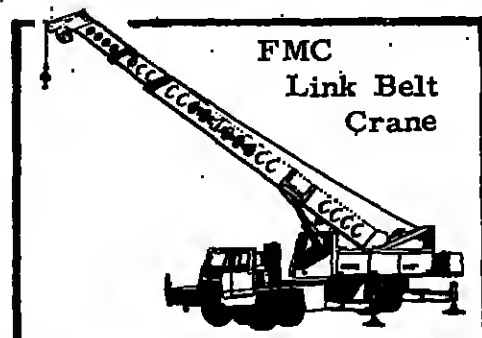
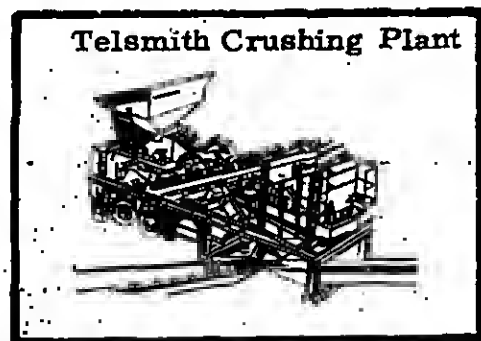
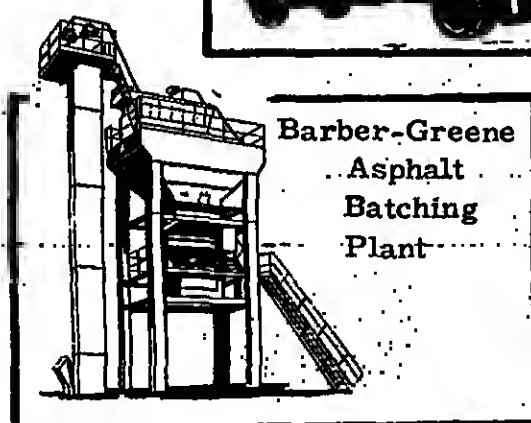
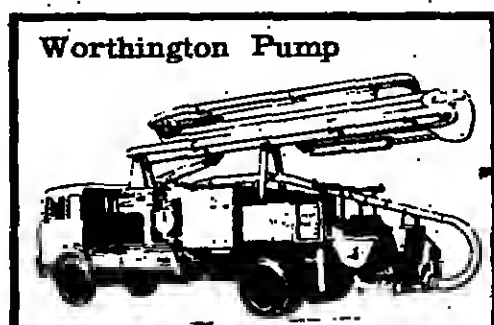
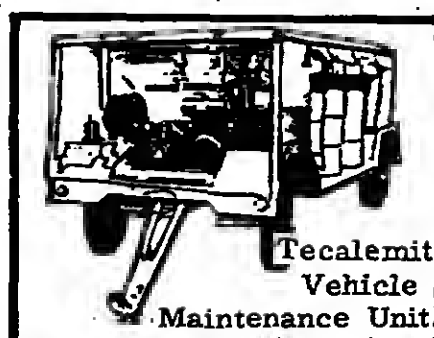
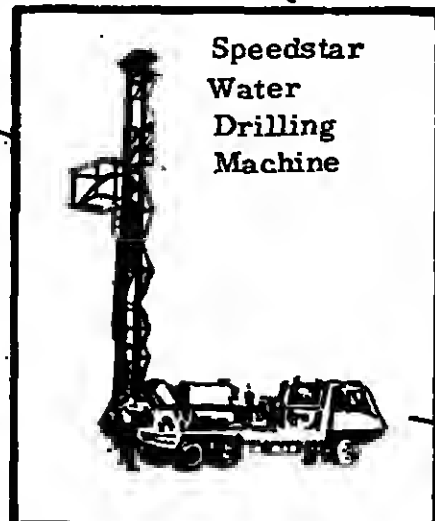
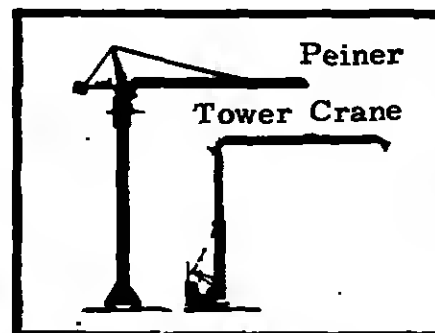
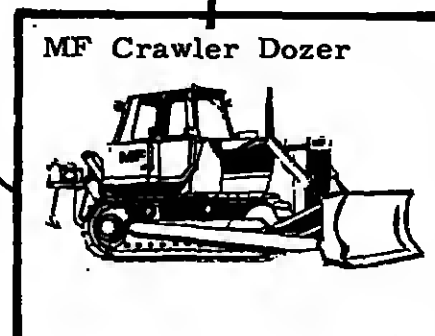
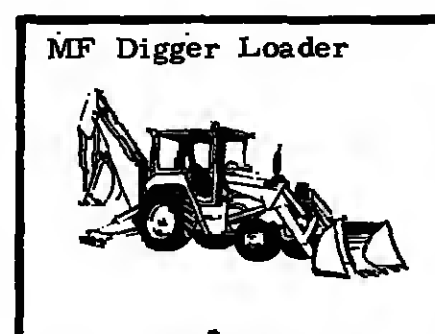
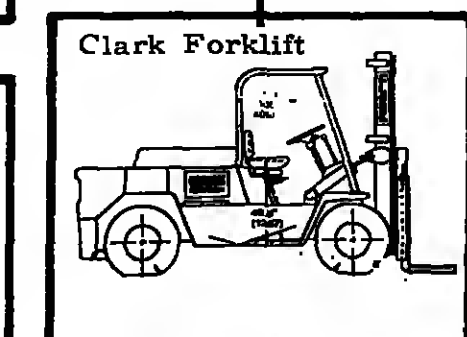
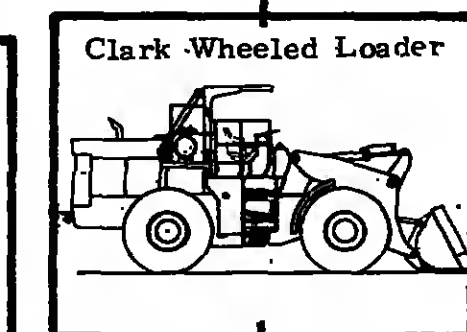
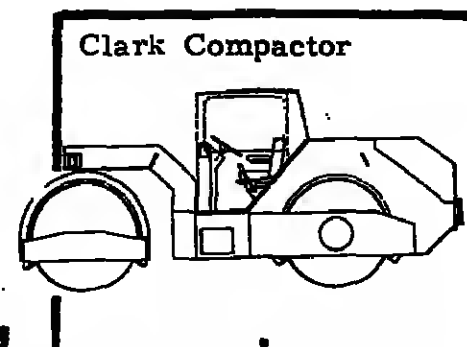
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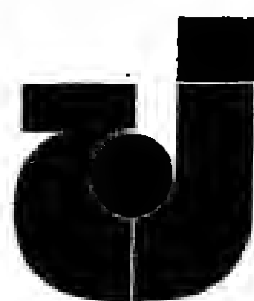
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Buraidah's \$40m apartment complex

By Tom Marinelli

Site preparation for construction of a \$40 million apartment complex in Buraidah is expected to start soon, once final agreements are concluded.

The 592 apartments are planned as the first part of a residential complex that would be five times the size of the initial construction.

Undertaking this project in central Saudi Arabia's Qassim region is Sheikh Abdullah I. Al Basir, owner of the 216,000 square meter site designated for the project. Only a section of this land, about 100,000 square meters, will be used for the initial project.

The building company which will construct the apartments is a joint venture made up of Sheikh Sulman Al Sulman, son-in-law and nephew of Sheikh Abdullah, and an Italian design and general contracting firm, Compagnia Progetti & Costruzioni di Roma (C.P.C.).

Buraidah, the Qassim region's chief town, is now experiencing a public works construction boom which includes a television station and telecommunications center, a sewage system with treatment plant, a power

station, hospital, airport and several government buildings.

Sheikh Abdullah's apartment project is a private undertaking. The apartments will be built in 16-unit blocks, for a total of 37 apartment buildings. Each of the blocks would eventually be put up for sale to individual entrepreneurs, who would then rent the individual apartments. The complex is being planned as housing for Saudi nationals.

Advanced method
Advanced technology, aimed at both rapid construction and quality control, will be used in the building of the apartments. Following the initial site preparation and set-up time, actual construction is to take only one year, a time frame cut down from an original 18 months when the advanced technology plans were introduced.

During the first six months, a plot will be set up to make reinforced concrete blocks, three of which will be fitted together to form a single apartment. Each of the prefabricated modules will measure 9.6 meters in length, 4 meters in width and 3 meters in height and weigh about 30 tons. Prior to erection, the modules will be

titled with all furnishings. Six blocks will be made and furnished each day.

Completed modules will be lifted by overhead crane and placed in position. Similar to cranes used to load container ships, the crane at the Buraidah site will move on a track in line with progressing construction.

Using this system, a 16-apartment building will take only about eight days to complete. Once a building is completed, it can be lived in while the other buildings are under construction.

The buildings will be four stories high, with each apartment measuring about 107 square meters. The apartments will consist of two bedrooms, two bathrooms, kitchen, living room and service room.

The work force building the apartments will be made up of 120 men, divided into four teams. Two teams will be assigned to the assembly factory, one team will work in the building area and a fourth team will act as back up. The men will live in prefabricated huts on the site.

Equipment available

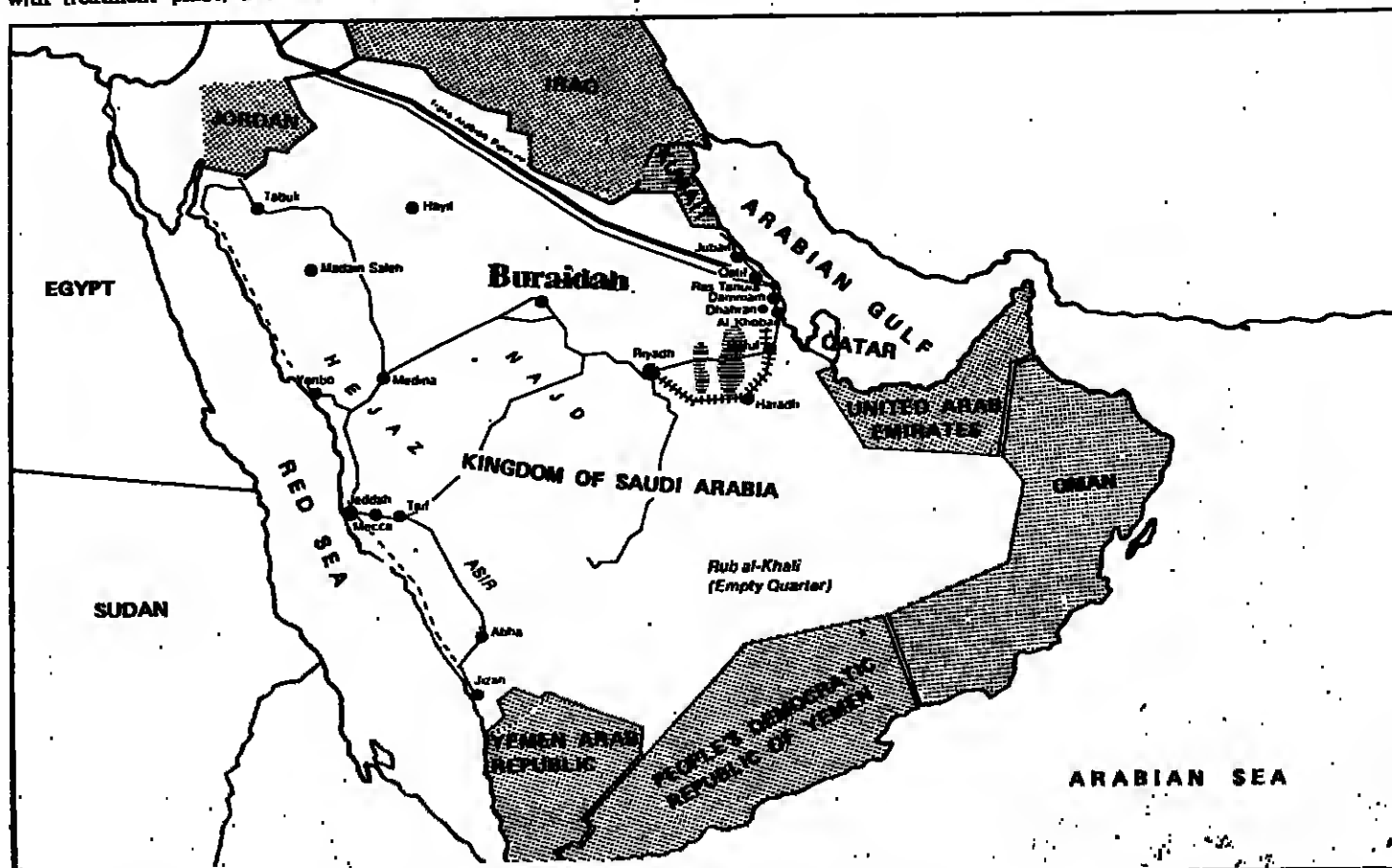
Once the 592 apartments are built, the plant and equipment used in construction will be available for later expansion of the project or for similar work elsewhere. There is no timetable yet for the expansion, which would be dependent on the success of the original units.

The patent for the building technology to be used belongs to Unimorano Company, and has been adapted for the particular conditions in Buraidah.

Near the old airport, the site is located 300 meters from the main road and is bounded by a new government building, the police station and residential and green areas.

The Qassim is one of the oldest and first inhabited regions in Saudi Arabia, and has a strategic location in the middle of the Arab Peninsula, slightly to the north of the heart of the Kingdom.

Covering an area of approximately 8,000 square kilometers, the Qassim region has a population of nearly one million persons, most of them engaged in agriculture because of the abundant underground water resources. Other activities include trading and sheep herding.



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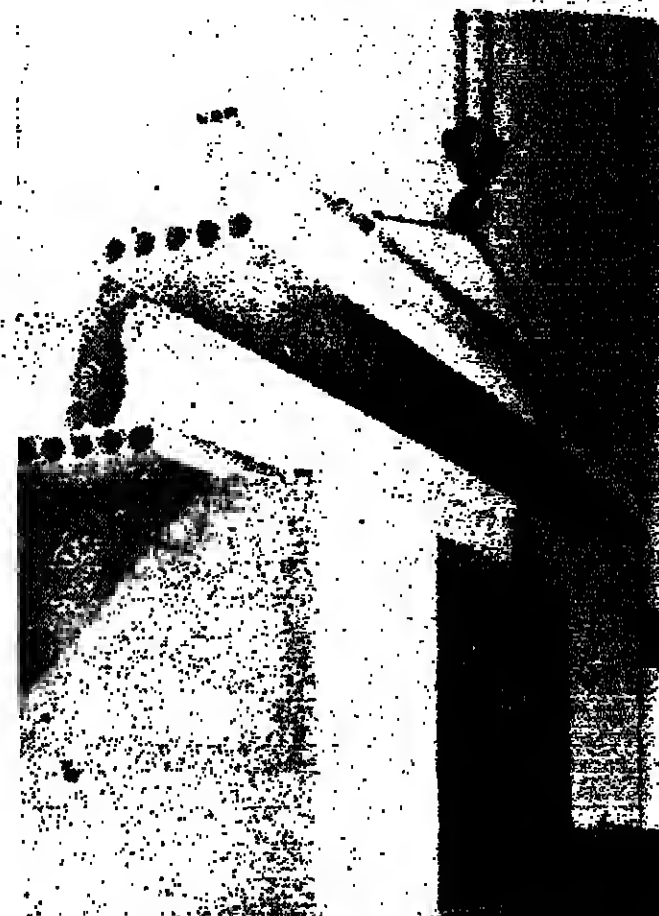


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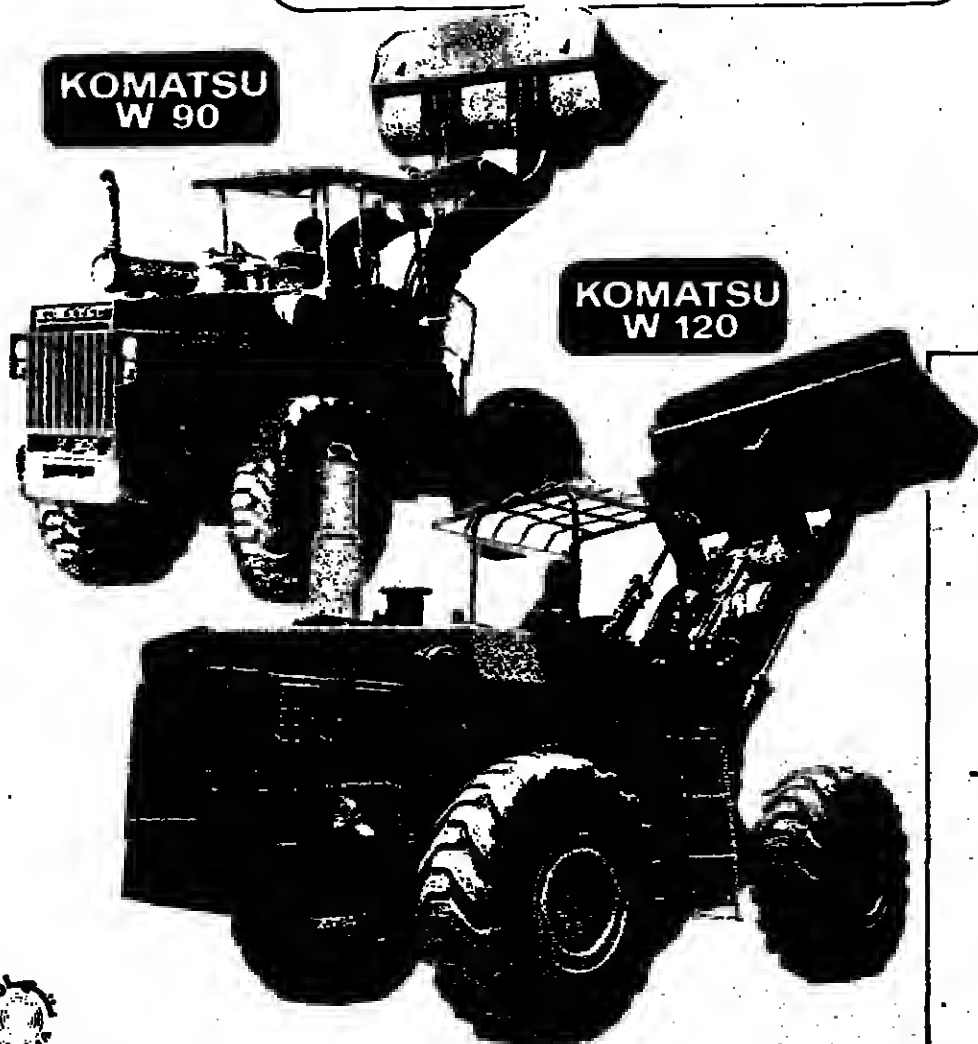
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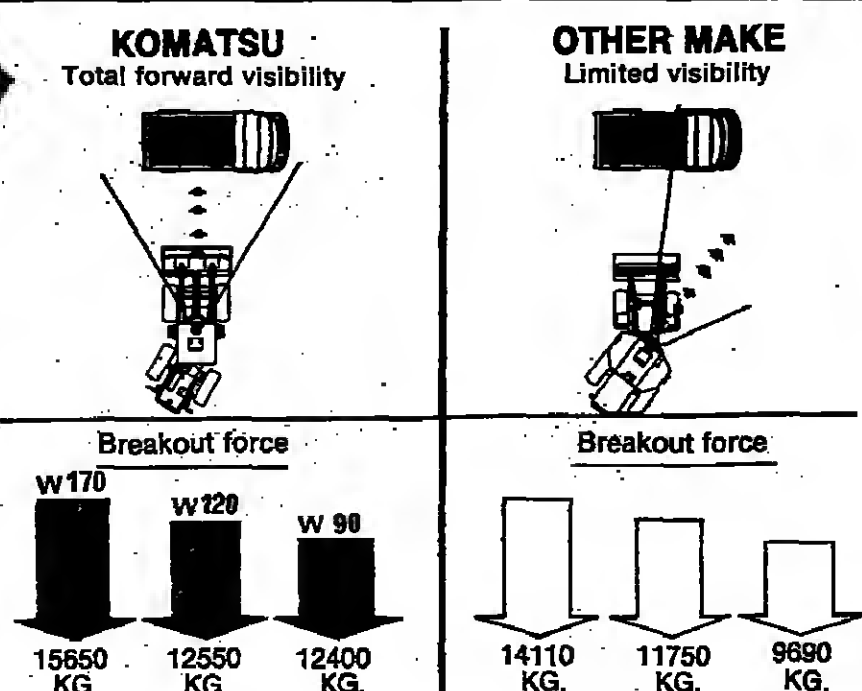
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Construction: Facts and figures

Special to "Arab News"

Editor's note: Plantecor (Oversen) Research Ltd., London, has just published its latest market study on construction equipment in Saudi Arabia, Kuwait, Bahrain, Qatar, the United Arab Emirates and Oman. W. J. Richter, the managing director of this research company, who claims to hold the world's largest data bank on these markets, summarizes some of the salient findings of this report exclusively for "Arab News".

Currently one of the busiest construction areas in the world is the Arab OPEC countries with Saudi Arabia by far in the lead.

With rising labor cost, mechanization of the construction industry in these territories has become a matter of survival and the degree of replacing labor through capital equipment has increased quite dramatically over the last few years. This trend will also continue through to the early 80's which, in spite of a reduced construction volume, becomes quite evident in table number 1.

But the table also allows a number of other conclusions, for example:

a. The expenditure for construction in the Gulf by 1981 will reduce itself by over 31% of last year's level while the reduction in Saudi Arabia will only reach some 14% (i.e. less than half of that of the Gulf States where the large-scale construction development started earlier than in most parts of Saudi Arabia. The Gulf States with their

thin population will, therefore have completed their development programs somewhat earlier than Saudi Arabia.

b. The overall decline in construction expenditure through the early 80's must be more or less exclusively accredited to reductions in public sector spending, while the private sector can be expected to attract an increasingly larger slice of the total construction volume. This entrepreneurial trend will have its best evidence in Saudi Arabia.

c. While Saudi Arabia's construction industry will increase its investments in equipment, the Gulf countries will show here a decline. Saudi Arabia's construction industry has for years been relatively labor-intensive because the country could fall back on virtually millions of imported labor (for instance Yemenis). Thus the more noticeable trend

towards mechanization has begun somewhat later than in the construction industry of the Gulf countries.

d. Although the annual construction volume will tend to shrink towards the early 80's, Saudi Arabia's investment in equipment will increase by 14.2%. Compared to 1977, the degree of rationalization (i.e. the investment in labor-replacing machinery) will increase by one third (from 11.5% in 1977 15.3% by 1981).

e. During this time the decline in construction expenditure (volume) in the Gulf would reach nearly one third of the 1977 level, that for machinery investment, however, only just over one fifth. This would result in a "mechanization factor" of nearly 19% by 1981 as compared to 16.7% in 1977.

f. The probably most interesting conclusion from the above table is the quite dramatic upsurge in the revenues for parts and services in Saudi Arabia. This will be caused by mainly two reasons:

—widely improved service facilities, especially at leading local equipment dealers

—the growing awareness for machine service/maintenance among contractors who will hence especially indigenous end-users.

Education and training will over the coming years contribute to a much higher level of technical sophistication among local contractors who will hence increasingly less dependent on foreign skill and know-how.

The parts and equipment service sector in Saudi Arabia will produce some 36% more revenue by 1981 than in 1977. This would also be influenced

THE MARKETS FOR CONSTRUCTION AND CONSTRUCTION EQUIPMENT IN SAUDI ARABIA AND THE 5 ARAB GULF STATES 1977 AND 1981

Item	US \$ Million in 1977 prices			5 Arab Gulf Countries		
	Saudi Arabia	1977	1981	% change	1977	1981
1. Construction Expenditure of which:	10390	8950	(13.9)	4243	2922	(31.1)
- public sector	8475	6620	(21.9)	3512	2124	(39.5)
- private sector	1915	2330	21.7	731	798	9.2
2. Expenditure for Construction Equipment of which:	1198	1368	14.2	710	552	(22.3)
- Sales of New Machines	841	919	9.3	478	346	(27.6)
- Part Sales & Service	198	269	35.9	128	111	(13.3)
- Used Equipment	159	180	13.2	104	95	(8.7)
Ratio 2 of 1 in %	11.5	15.3	-	16.7	18.9	-

1977 CONSTRUCTION EQUIPMENT MARKETS IN SAUDI ARABIA, AND THE GULF (THE UAE, OMAN, KUWAIT, QATAR & BAHRAIN, AGGREGATED).

Market Trends Equipment Group	No. of individual Groups, analysed by Country	Working Machine Population end '77 Nos.		1977 Unit Sales Nos.		1977 Total \$ mil.		1977 Total Sales Nos. \$ mil.	
		Saudi A.	5 Gulf States	Saudi A.	5 Gulf States	Saudi A.	5 Gulf States	Saudi A.	5 Gulf States
Earthmoving	7	13305	9708	2763	1995	277.8	186.4	4758	464.2
Construction Transport	5	19867	7135	5240	1264	246.3	61.3	6504	307.6
Compaction	3	2250	1955	444	345	13.7	10.2	789	23.9
Roadbuilding & Aggregate Plant	4	1025	921	262	163	41.5	31.3	425	72.8
Cranes	6	2862	3518	725	673	118.2	99.8	1398	218.0
All Other Equipment Types	5	19900	19450	5305	4020	143.4	88.6	9325	232.0

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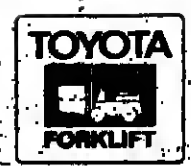
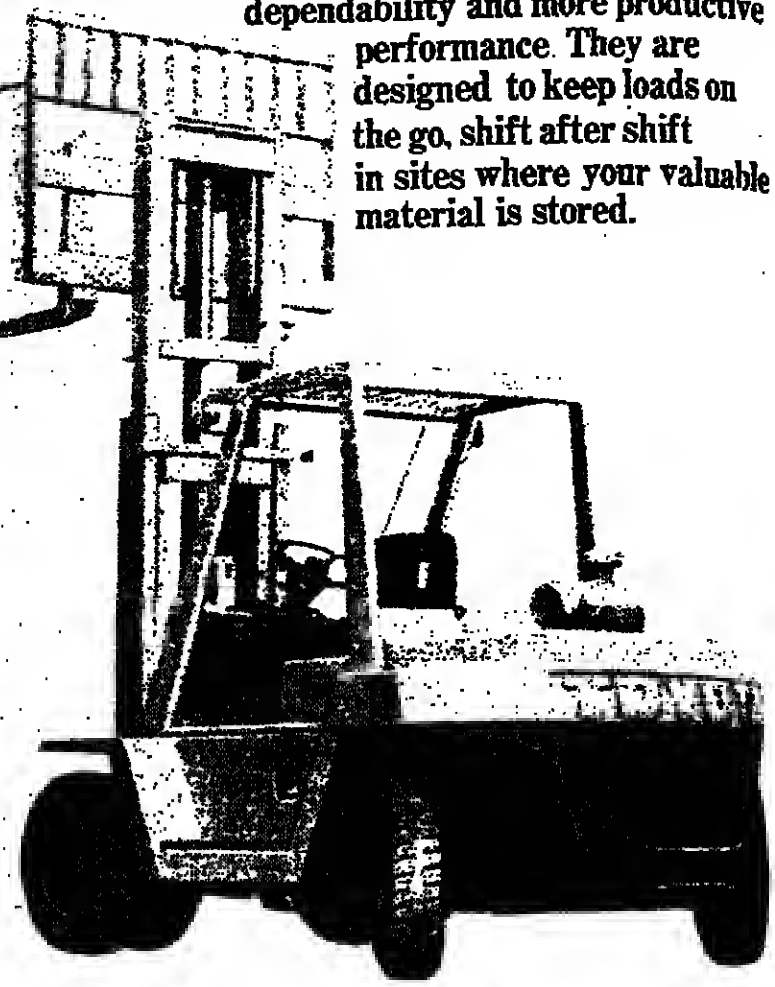
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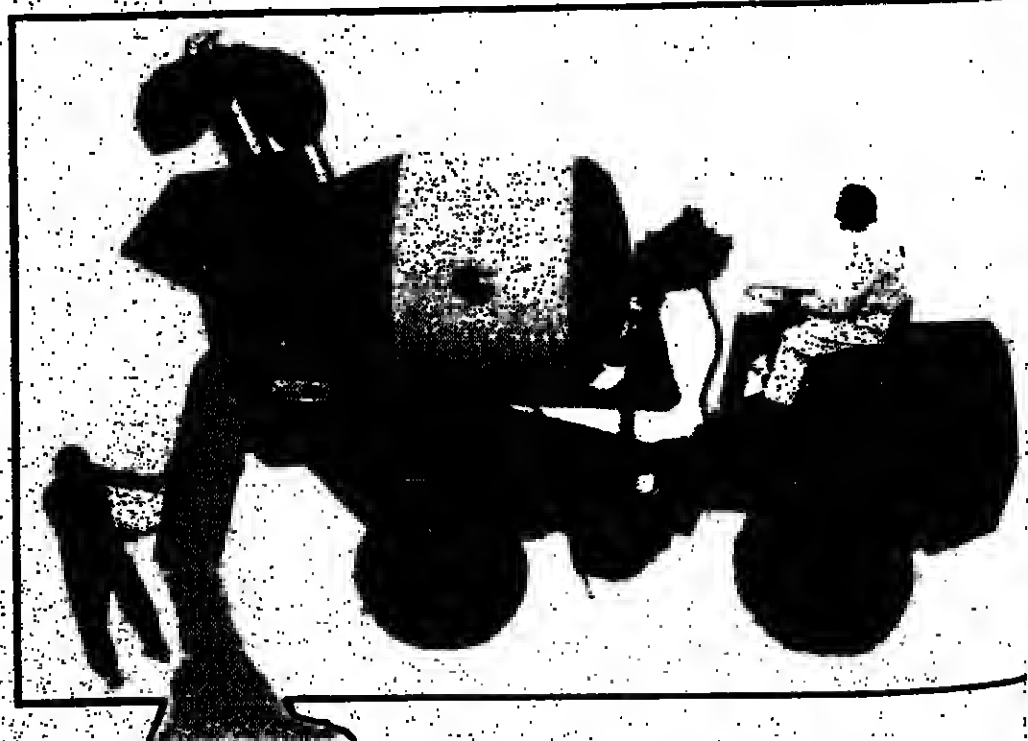
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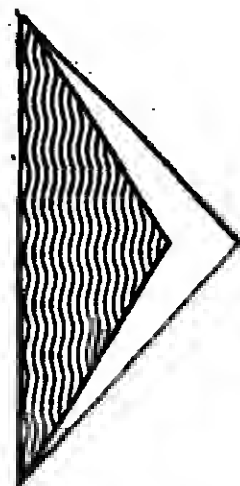


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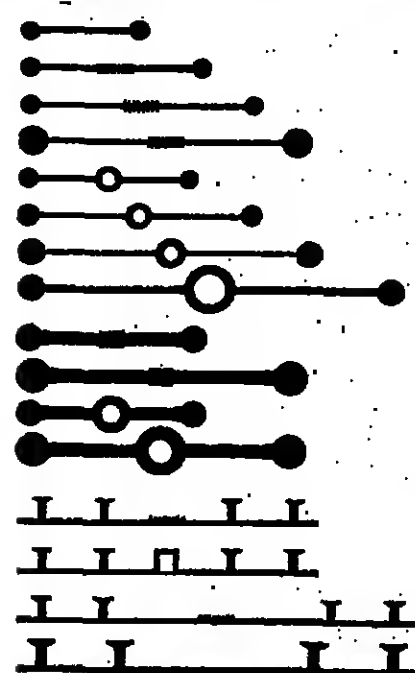


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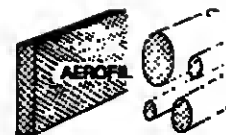
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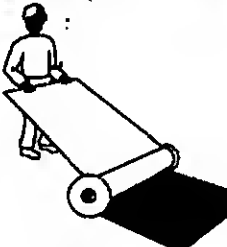
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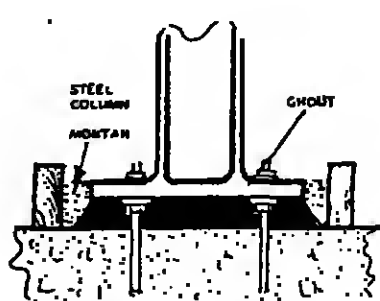
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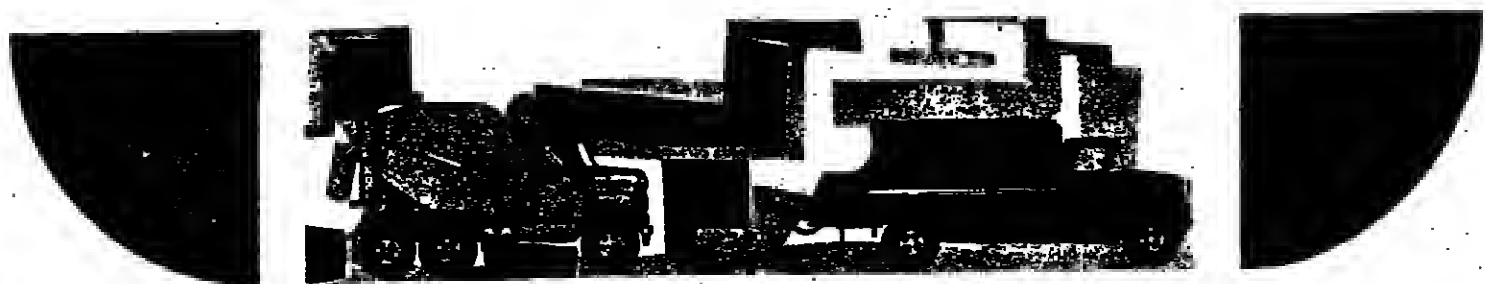
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by the growth of the market for imported and local "used equipment".

Since the profit content for parts and service is usually a multiple of that for new equipment sales, the overall profit situation for Saudi machinery workshops (or dealers and, though to a less degree, contractors) would probably more than offset the decline of profits out of new machine sales. This, of course, applies especially for those machines which have succeeded in building up a relatively large working machine population, which would automatically generate the demand for after-sales service, especially that for the spare parts.

g. The construction equipment markets in the Gulf would show a similar trend towards after-sales business which would, therefore, result in a smaller decline here than in the sector for new machine

sales. The 1977/81 comparison, however, does not show the fairly high level of back-up service in the Gulf which prevailed already last year. This is mainly attributable to streamlined workshops of international contractors. By 1981 many local contractors and especially leading distributors of construction equipment will have "caught up" with the level of service quality to a degree which would lead a growing number of contractors to the decision to shift their machine back-up from their own facilities to those of leading local dealers, etc.

Table 2 shows the structure of construction machinery shipments during 1977 for the 6 national markets investigated. The table, however, reflects only a relatively crude aggregation of the details in the Plantecon Study, i.e. instead of 31 individual product markets, as well as their variations in specification, capacities,

price etc., it only shows 6 groups, and instead of altogether individual areas (Abu Dhabi and Dubai plus the Northern Emirates are analyzed separately) only 2 are shown, i.e. Saudi Arabia and the Gulf.

Although the overall machine capacity (simplifying here related to the price-level) between Saudi Arabia and the Gulf is almost equal, there are, however, quite broad distinctions when looking at the individual groups, for instance: earthmoving equipment in Saudi Arabia tends to be on average nearly 8% larger than in the Gulf market, or for "All Cranes" this would even amount to 11%, etc.

Both tables 1 and 2 would allow many further conclusions which may be left to the reader to draw.

The tables, as well as the above derivations, do, however, not consider the structural changes within the various equipment groups, for instance, the trends for hydraulic excavators vs. that for crawler or wheel loader, scrapers vs. truck and loading shovel, rough terrain vs. truck cranes, on-vs. oil-highway trucks, ripping vs. blasting, batching plant vs. drum mixer, etc.

The Plantecon study analyzes in minute detail these and many other trends, which would also include the differences between individual territories i.e. Abu Dhabi vs. Dubai, Kuwait vs. Oman, Eastern vs. Western Provinces in Saudi Arabia etc. The study must be seen as an invaluable source of information for anyone using or trading construction equipment in or for this area. It contains nearly 20,000 statistical data like that in the tables. The report can be obtained through Plantecon (Overseas) Research Ltd., 150 Lordship Lane, London SE22, England (Tel: 01-299 0534, Telex: 896691 Tlxir.G). The price of £750 compares with that of a return air ticket (economy) U.K.-Middle East.

Building materials' specifications

By Henry Dawson

EDITOR'S NOTE: The specification, supply and incorporation of the materials for a Middle East contract presents particular problems for consultants, contractors and manufacturers. This article summarizes some of the lessons to be learned by these parties. It is based on research carried out by Building Management & Marketing Consultants Ltd., for whom the author is Middle East consultant.

As a preamble to any discussion about "building materials" in the Middle East, it is necessary to appreciate that about 70 per cent of all building materials are imported, and because of that, the local consumption is dictated by foreign consultants and specifiers, foreign manufacturers and, to a certain extent, by foreign contractors.

At last year's Doha conference on Middle East construction, there was notable criticism that Western designs and materials were being imposed on the Arab community. Such a discussion on materials should, therefore, be as relevant to designers, specifiers, contractors, manufacturers and clients alike, and they should take note of local customs, technology and constraints.

Of all those groups that are responsible for the eventual incorporation of materials into buildings, it must be the con-

sultant designer/specifier who must take the greatest degree of care. It is he who dictates the overall detail and design and can persuade the client of the benefits of using certain materials. Many materials are specified in the overseas head offices of foreign consultants, often by staff who may have no local experience.

Local customs
Examples of compliance with local customs and traditions might include the use of heavy external and internal walling materials, of a somber but intricate nature, small windows (for none at all in certain residential areas); low rise as opposed to high rise; flat screened roofs; separate sanitation systems for foul and kitchen waste; the relationship and size of reception, living, cooking and sleeping areas in domestic design; cool flooring materials, etc.

An example of successful and appropriate architectural design is the use of sunscreens on the outside of many new buildings. Panels, often of precast concrete, are suspended beyond the window facade to break the glare of the sun.

Compliance with local customs closely relates to that of response to local climatic and geological conditions. These conditions include wide ranges of temperature and humidity, high salt content in soil, air

and water, wind blown sand, ultra-violet degradation of certain materials by intense and prolonged sunlight, occasional flash-flooding and the susceptibility of earthquakes.

Much research has been done and is still to be done to discover how materials stand up to these conditions and to set standards for the future. British, American and German research institutes in particular have been collaborating with local organizations such as the Kuwait Building Research Establishment and the Saudi Arabian Standards Organization. However, standards are predominantly dictated by the nationality of the specifying consultant, with British standards predominating in Jordan, Kuwait, Bahrain, Qatar, the UAE and Saudi Arabia. Syria uses a mixture of British and German standards and Iraq of British and American. In Saudi Arabia, the U.S. Corps of Engineers, Aramco and others use American standards.

Locally produced materials
The lack of locally produced or available materials undoubtedly imposes a constraint upon the total construction output in the Middle East and poses many problems in the execution of individual projects. The problems do, however, vary between countries. Iran, for example, suffers far less since it has a high level of locally pro-

duced materials, whereas in the Emirates almost everything is imported.

Most countries are investing heavily in the production of construction materials such as cement, steel and aluminium. Other materials that are manufactured or are being encouraged include plaster, ceramics, sanitary-ware, asbestos products, plastic products such as pipes and laminates, glass and cast iron. Preference is given to those that consume local resources. These obviously include natural stones.

There is little point in specifying a foreign component that is subject to a high import tariff because there is a locally produced equivalent.

Purchasing/Distribution Chain
Materials break down into three broad categories: locally produced materials; imported materials which are already in stock in the bazaar or with a distributor; and materials that are imported either directly or through an agency by the contractor for a particular project. The latter are either general or of a specialist nature for projects which are often at the prestige end of the market.

It is essential for all to understand these three processes. It would do no harm for a consultant to visit the bazaars to see what is available and how the system works. There are

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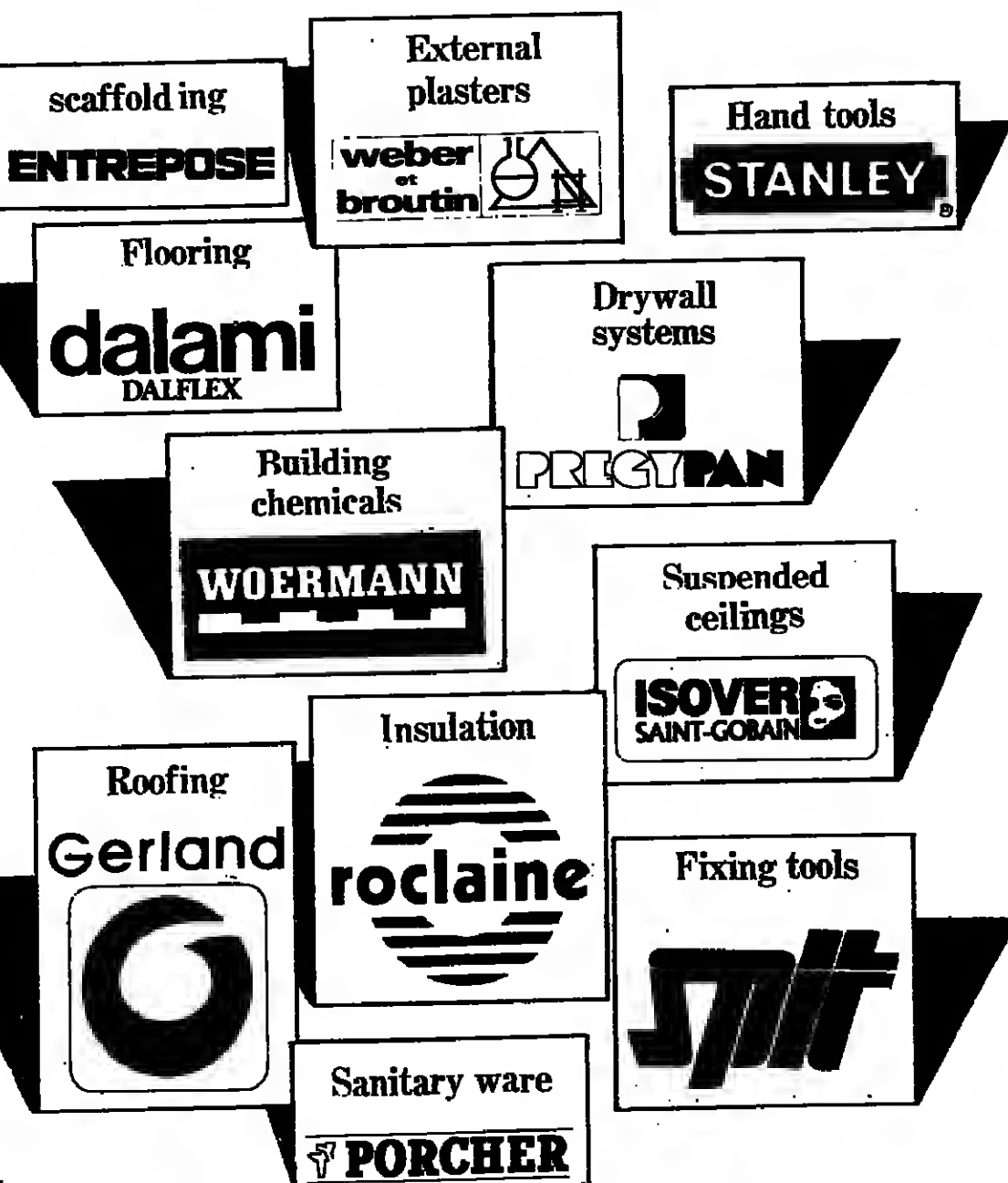
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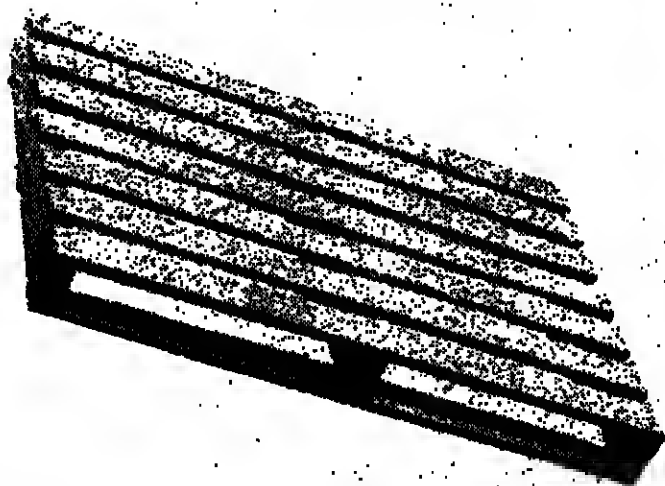
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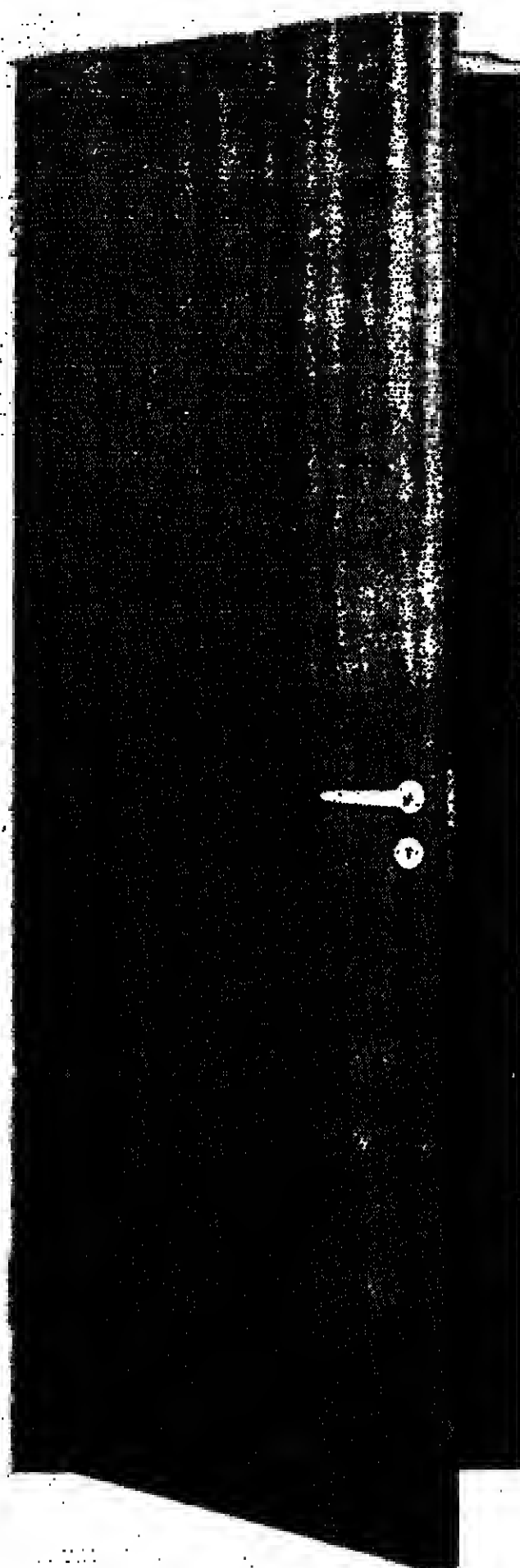
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basically no builders' merchants. Traders tend to specialize in a small range of standard goods, there often being several similar traders in one street, with a different range in an adjacent street. The bazaar prices are a good monitor for valuing work.

Organizations such as Aramco, the U.S. Corps of Engineers, Bechtel and Parsons are playing an increasing role in the procurement of materials in Saudi Arabia. They are charged with managing large construction programs, such as: Juhail, Yanbu, the new Riyadh and Jeddah airports, and the military and oil-related programs. Part of their brief is to secure standardized and maintenance-free materials, components and installations. To achieve this, they impose rigid standards and in selection procedures, and in some cases are pre-buying materials into stock for the contractor to install.

Local practices and the availability of local skilled labor

Beyond the ingredients of concrete and steel, the methods and materials of construction used in different countries generally reflect their indigenous resources and culture. For example, brickwork is a traditional material in Iran and Iraq, which have extensive brick-clay deposits. Bricks are used not only for walls, but also for the interesting and unusual method of brick-arching as a structural floor material.

Bricks are used elsewhere to a much smaller degree, since they nearly always have to be imported at great expense. The situation is changing in that brick plants are being built or are planned. There is now a factory in Kuwait producing sand-lime bricks. The decision to specify bricks, however, must be related to the availability of labor capable of laying them.

The structural frame in concrete or steel with hollow-pot or concrete block infilling is a common sight for general building work. The blockwork, however, will be fairly crude and will be rendered internally and externally.

The shortage of labor in most Middle East countries is common knowledge. The shortage is most noticeable in the skilled trades available. Measures are being taken to reduce the number of wet trades where possible, since plasterers, screeders and the like are scarce. Prefabrication for walls, floors, cladding, etc., is increasing, together with the use of 'dry' partition and ceiling systems.

Middle East contractors tend to be more innovative than their foreign counterparts. It is quite common to see the site manufacture of doors, windows, their frames, ventilation ducting, grills, blocks and even bricks in times of shortage. Specification, therefore, should respond to these local practices.

Awareness of local 'cottage' industries is also relevant to the

specifier and estimator. Good examples are the manufacture of concrete blocks, terrazzo tiles for floors, skirtings, and roofs, standard kitchen furniture, carpets, etc.

Concrete and other cement based trades

Particular attention must be paid to the design, mixing and placing of concrete. This is most relevant on the Gulf coast. Rapid deterioration of concrete is caused by reactive minerals, the climate and the water. The root of the problem is the chloride and sulphate salts which pollute the ground, the water, the atmosphere and the aggregates. The extremes of climate accelerate both the chemical attack and physical deterioration.

This is not only a contractor's problem; it is for the consultant to ensure that proper controls are implemented. Aggregates must be continuously tested, reinforcing steel must be thoroughly cleaned just before incorporation, materials must not be stored on salty ground, foundations may have to be tanked to prevent attack, the chemical content of the water used for mixing must be constantly checked.

These problems extend to concrete blockwork, screeds and rendering. Many contractors will not subcontract the manufacture of blocks for fear of losing control and incurring the logical consequences of faulty materials.

They also affect certain materials

incorporated below ground, such as drainage goods. Enormous sums of money are being spent on installing main drainage schemes in the major towns and cities. Cement-based pipes such as asbestos and concrete face attack from the ground salts outside and from bacterial breakdown inside, a problem that is aggravated by high temperatures.

Knowledge of the end-user. This point is especially important in the specification of 'mechanical' equipment—everything from highly complex installations to 'anything that moves' such as door handles and light switches. The predominant message is to specify simple components that are easy to install and are reasonably maintenance-free.

The consultant may be under the illusion that his job is done once he has told the contractor what to install. However, if a component fails to operate soon after the contract is handed over, the consultant will be expected to organize its rectification. Where the failure is due to the neglect of the end-user, the contractor will expect payment, but the consultant will receive no fee for his involvement.

It is also important when selecting complex equipment to ensure that the supplier provides operating and maintenance instructions in Arabic. Suppliers can improve their image by supplying spares of those parts that are subject to breakage or quick deterioration.

Client consultant/contractor relationship

In Britain, for example, it is commonly acknowledged that if a project is delayed, it is the 'contractor's fault' whatever the cause of the delay. The consultant team has an easier job of persuading the client that the blame lies with the contractor. In the Middle East, however, delays will reflect on the consultant, whether caused by the contractor's default, design modifications or client's requested alterations and additions.

The consultant must, therefore, have a much greater degree of involvement with a contractor and a deeper understanding of his day-to-day problems. One of the contractor's major problem areas will be in the procurement of materials and equipment and their safe delivery to the site. Many of the sites visited or discussed during our research were beyond our program. One of those contributory factors to non-delivery of components. The blame for this no longer lies in congested ports and local shortages.

The lesson that emerged was that the consultant should encourage the contractor to order/purchase sufficiently in advance and to get the necessary approvals for the chosen products at an early stage. In short, he should be involved with the contractor's detailed programming.

The consultant can make the contractor's job easier by specifying products that are not

subject to long manufacturing delays and for which immediate replacements are available for damaged items. Mechanical and electrical services are a good example of where attention should be paid in detail in order to avoid such things as Imperial sanitary fittings being offered to metric pipes or incompatible Japanese conduits and European fittings of differing diameters.

Much of the foregoing would appear to throw the onus upon the consultant. However, contractors should appreciate that it is a two-sided involvement and pay the same attention to the consultant's problems.

The contractor has many more worries of his own. Some of these are caused by the pressure on demand as construction industry output increases.

This is paralleled by an increasing demand by clients to get the best specification possible and a trend towards more expensive and elaborate designs and finishes. There is, therefore, an onus on manufacturers to pay attention to all these factors and respond accordingly to changing market forces.

Most construction components require technical selling. It is not sufficient to leave this to the agent or to the occasional two-day visit by a sales representative. Selling in the Middle East is a study in its own right and requires much more on-the-ground knowledge and representation than many manufacturers would appear to offer.

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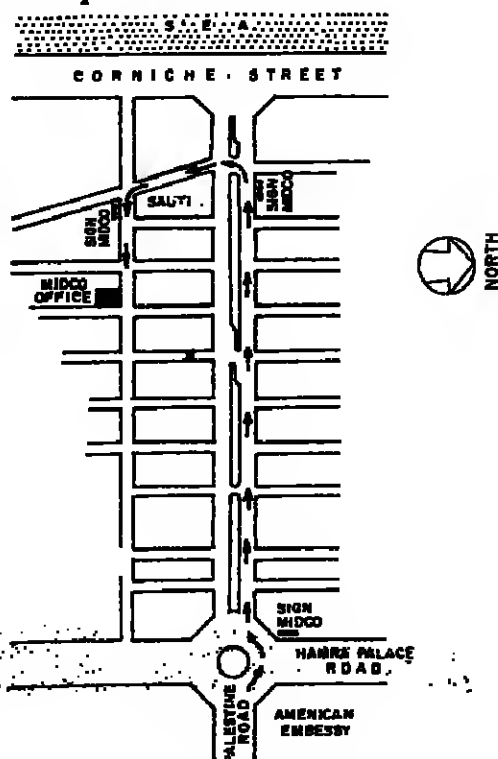
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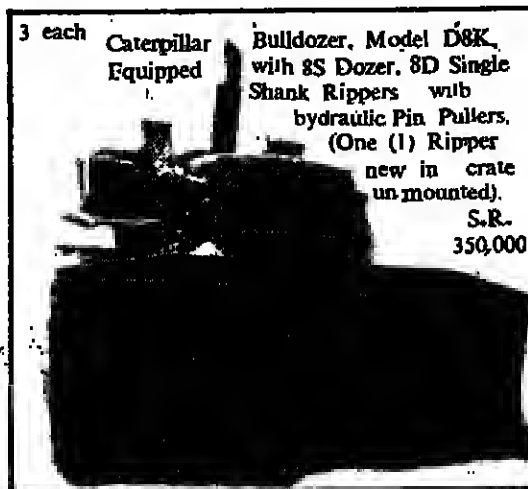
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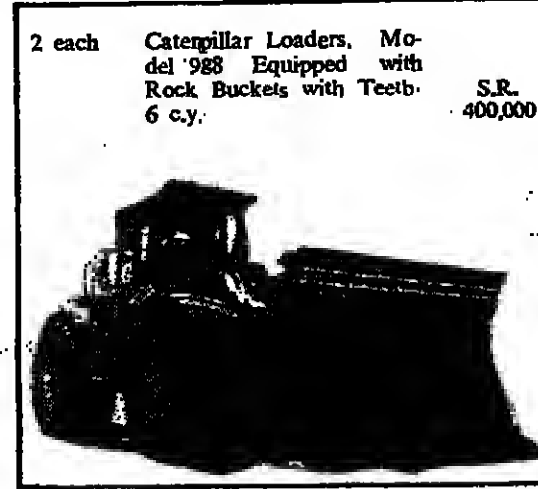
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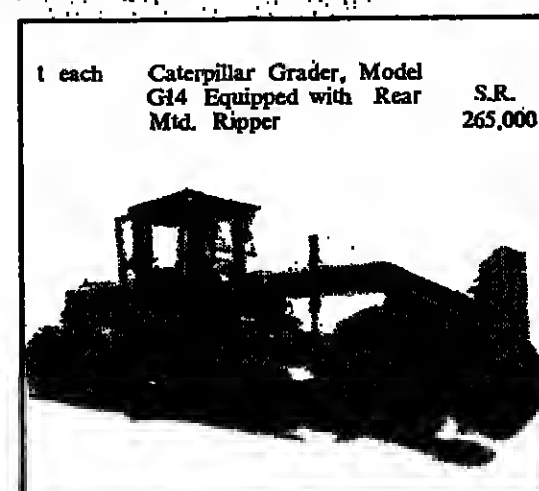
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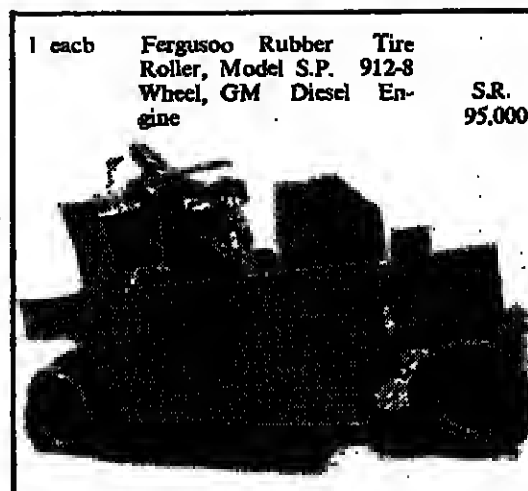
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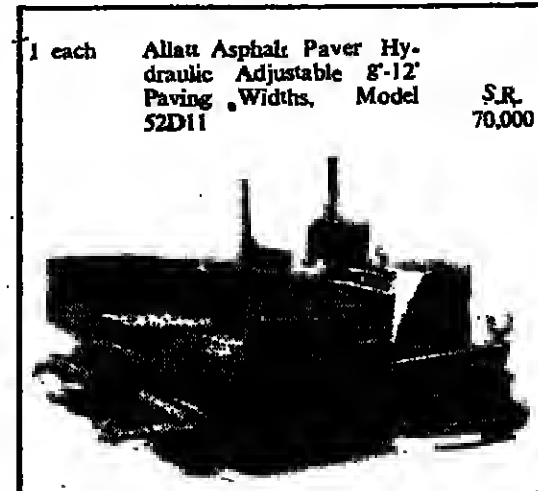
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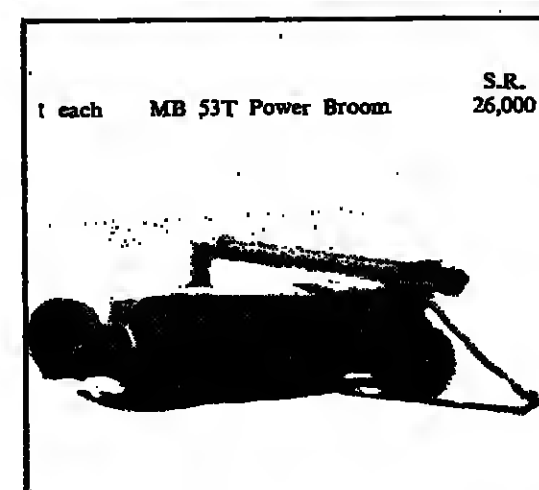
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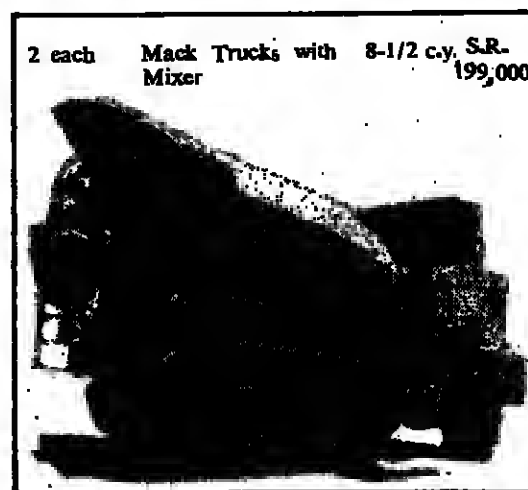
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Roles and opportunities for architects

By David Crawford

Editor's note: David Crawford is editor of "Middle East Architectural Design" and author of "Getting Work in OPEC: A Guide to Opportunities for Contractors and Building Professionals," published by the Architectural Press.

If, for any reason, the world at large needed at short notice to have recourse to the largest, most international, widest experienced and environmentally best conditioned pool of constructional design expertise conveniently accessible in any given area of the earth's surface, there can be little doubt as to the first place where it would look — the Arabian peninsula.

The international range and quality of the skills committed to this booming subcontinent resembles the way in which the nations of the world combine, under the flag of the United Nations, to send their military ambassadors to hold the line of peace in an area of conflict.

So, in the cause of Middle Eastern (and especially Arabian) development, the nations of four continents are vying to send their ambassadors of design skill — their architects, their civil, structural, mechanical and industrial process engineers, their back up teams of interior and landscape designers, surveyors and other specialist consultants — to convert the raw material of oil and other mineral wealth into complete and integrated modern societies.

Occupying a central role in the whole spectrum of Middle Eastern development — and hence in the priorities of Western countries with consultancy skills to export — is the Kingdom of Saudi Arabia. This is not just because Saudi Arabia has a quarter of the world's proven oil reserves, or is its largest single exporter — through these factors in themselves have proved sufficient to support a Second Development Plan for 1975-1980. Con-

ting \$142,000 million, the plan is providing a great deal of work for a great many consultants.

In the Saudi financial year ending June 1978 alone, allocations in the development sector totalled nearly \$40,000 million.

Examples of the gigantic scale of development projects being commissioned by Saudi Arabian government departments and publicly funded development organizations are becoming so commonplace that it is sufficient to quote a few in a handful of relevant sectors.

Among them must be mentioned one of the largest desalination projects anywhere in the world — the \$700 million Jeddah steam power generation and desalination plant, with British consulting engineers as designers; the \$17,500 million natural gas collection, processing and distribution network being developed for the country's Eastern Province by a consortium of American engineering organizations; and the \$700 million plus development of the new Riyadh University complete with its medical school and teaching hospital, of which an international array of consultants, architects, engineers and others are in charge.

On a smaller, but still impressive, scale are the infrastructural development programs of Saudi Arabia's neighbors in the peninsula, themselves high in the world league of development spenders, thanks to oil reserves out of all proportion with their relatively small populations.

Future activity

In some areas, the scope for future activity at the level of the multi-million dollar infrastructural project is naturally going to become more limited than in others as existing commitments are completed. Even so, there will be work at this level for the major interna-

tional consultants for a good few years to come.

But this is only part of the spectrum of future development opportunities in the Arabian peninsula which will provide continuing roles for consultants' expertise. What has conceivably even longer term potential is the growing need for "downstream" or post-infrastructure development programs, and it is in this context that Saudi Arabia has a significance, both inside and outside her own borders, other than in the sheer infrastructure-buying capacity of her oil and gas.

Internally, Saudi Arabia has the opportunity, thanks to the smallness of her population as compared with both her land area and her earnings, to develop a society of very high quality indeed.

Her great advantages are time and space: time to plan well ahead for the new industries needed to supplement (and ultimately to replace) oil and gas, and space to ensure that these are strategically sited; time and space to plan well-located new communities to satisfactory environments; and, equally important, to provide both these and established communities with a high standard of educational and social welfare facilities.

An illuminating example is the new Al-Maghrabi Eye Hospital in Jeddah, built by the local Borkan Construction company with the aid of loans from the Saudi Ministry of Finance and designed by the American firm of Rogers, Butler, Burgum, who specialize in hospital projects.

The 70-bed hospital (currently being extended by a further 50 beds) took three years to build, because of the high standard of finishes and equipment — the latter among the most modern and sophisticated available anywhere in the world.

This exemplifies the standards which Saudi Arabia is

able to set for her citizens, in health, in welfare, in education and all the other accoutrements of a modern society, whether provided exclusively by the government or, as in the housing sector, by private enterprise, with the aid of government loans.

In common with other fast-developing economies, Saudi Arabia has an urban drift problem, but is now beginning to get under way the provision of sufficient low income hous-

ing to prevent overcrowding and shanty towns becoming a major problem.

Skilled consultants

In all these important (if less dramatic) areas there are key roles for skilled consultants. The extent of the interest they are generating is shown by a recent list of current Saudi social welfare prospects, in which consultants from the U.S.A., the UK, Canada, Belgium, France, Italy, Switzerland, Germany, Swe-

den, Denmark and Lebanon appear, as well as from Saudi Arabia itself.

Agricultural development is another area of major potential which lies in the future, and where consultants will have major opportunities; while tourism, were Saudi Arabia disposed to it (which as yet she is not) could overshadow most of the rest of the Middle East.

Opportunities such as these are present within the Saudi

boundaries, but outside there are those generated by the Kingdom's role as a source of development aid to other (usually Muslim) countries — such as Egypt, the Sudan and North Yemen, but also further afield, such as Malaysia. Saudi Arabia is the largest donor in the world, after the U.S.A., with aid currently running at around the \$4,000 million level.

Saudi wealth, in other words, is enabling the non-oil produc-

ing countries of the Middle East to purchase the development they need and, at the same time, the skills of the consultants needed to realize their ambitions — a policy being echoed by other oil producers on the Arabian peninsula. Wealth generated in this one key area of the Middle East is spreading wider and bringing with it a never diminishing need for the services and skills of the construction consultant.



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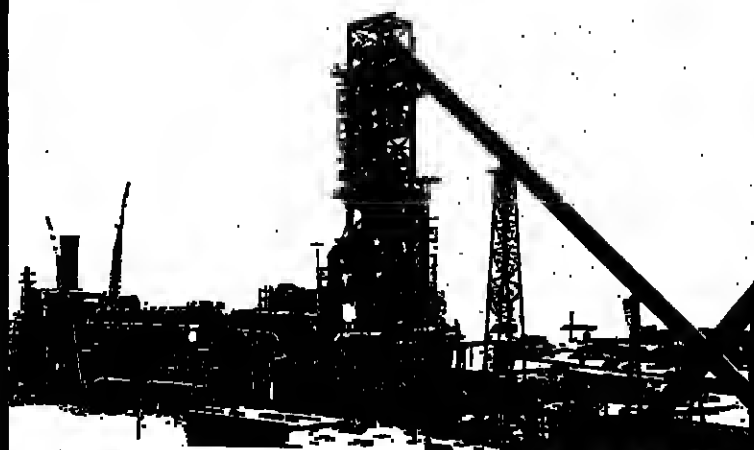
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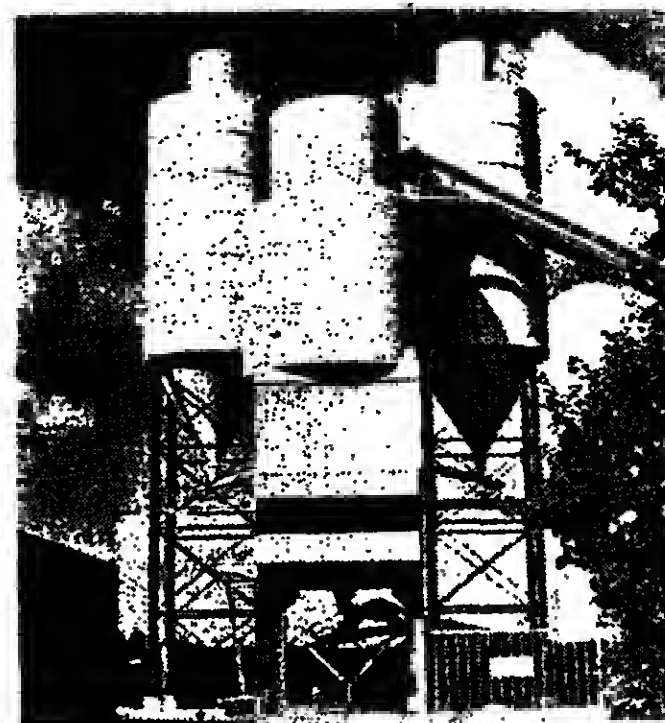
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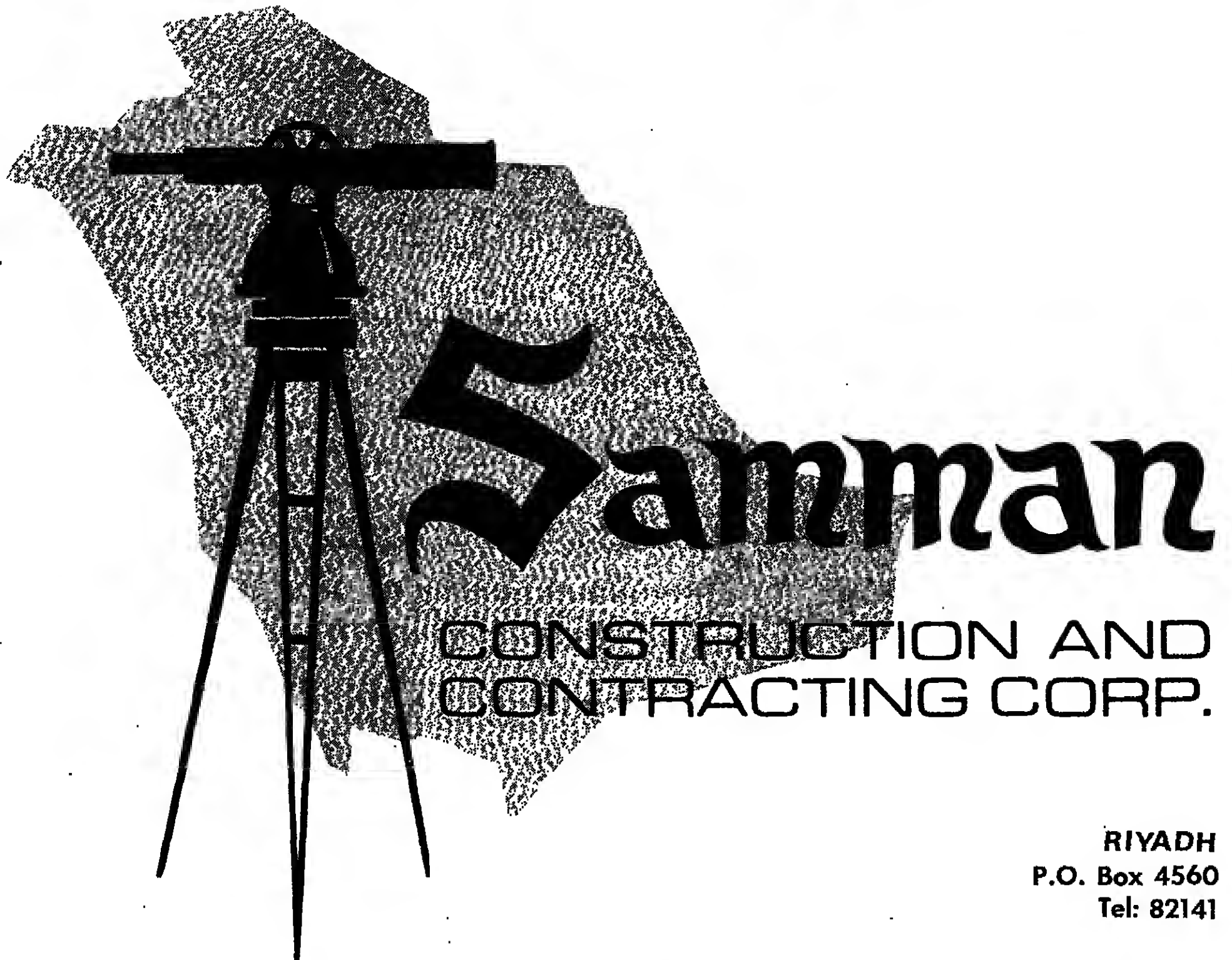
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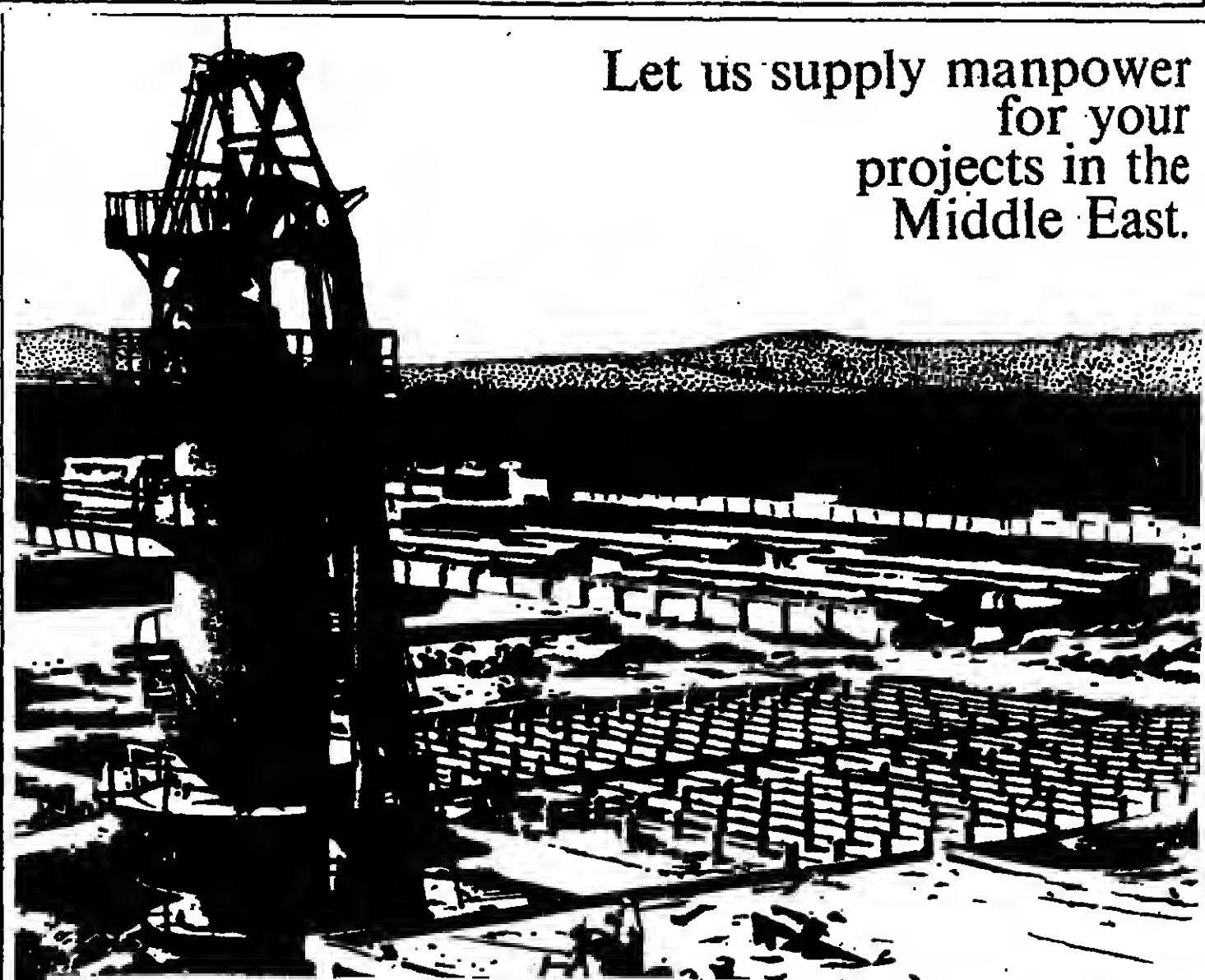
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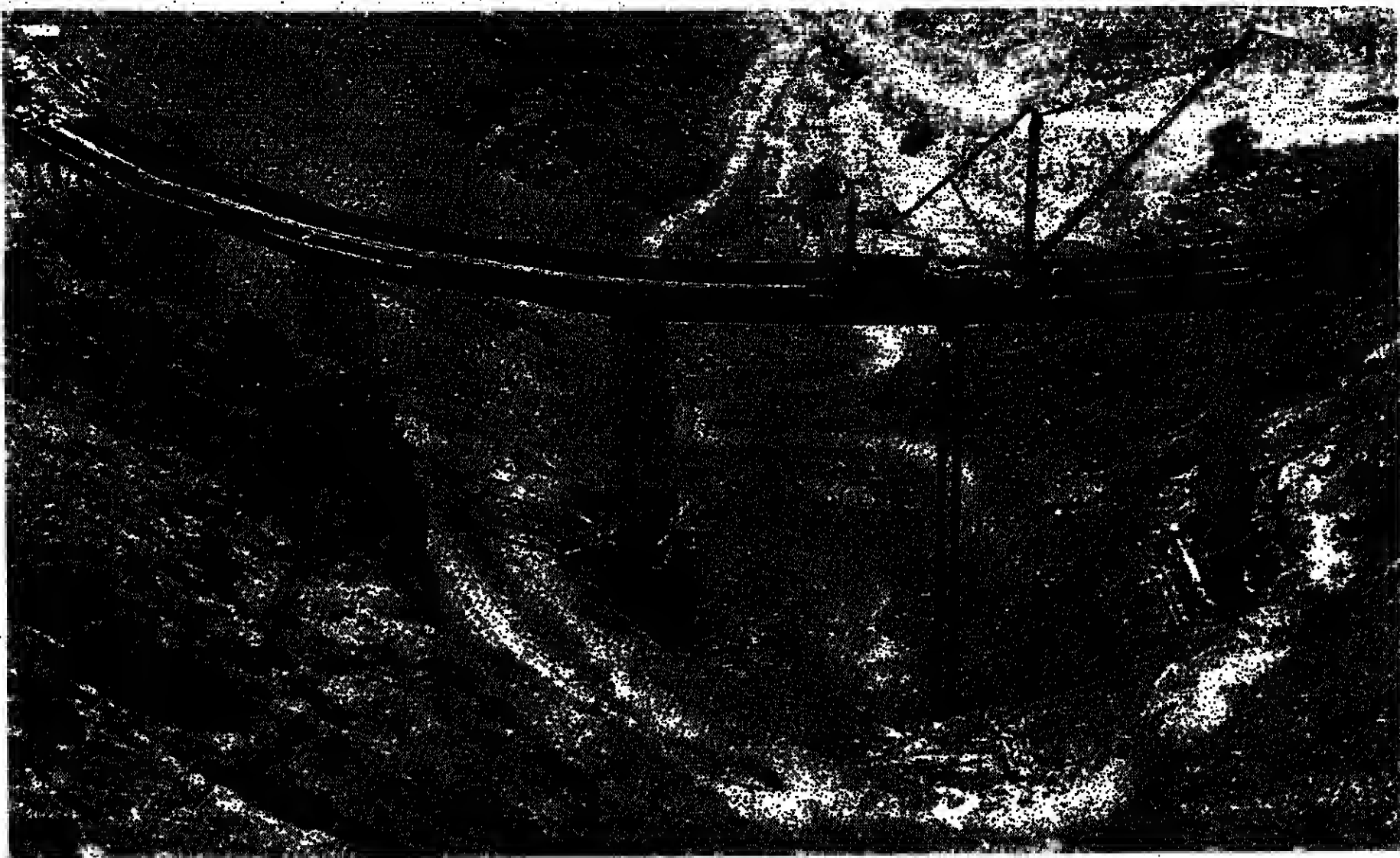
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By Crown Prince

Taif-Abha-Jizan highway opened



One of the many bridges on the newly opened highway

By Farouk Lugman
The road that Crown Prince Fahd opened last week, linking Taif-Abha-Jizao is one of the longest asphalted roads in Saudi Arabia and one of the most difficult to be built anywhere in the world.

The Saudi Minister of Communications Sheikh Hussein Mansouri described it "as a masterpiece in which highly sophisticated technological expertise has been displayed and utilized to overcome natural

and physical obstacles and hindrances where the 753-km road is being constructed."

Mansouri said that the execution of the first stage of the project has necessitated the cutting of two 553-meter tunnels.

The construction of this road was given approval 15 years ago. Planning took four years and actual building of the road took another 11 years because of the difficulty of the terrain traversed by the road in the southwestern region of the country.

The road cuts through an agricultural region which will receive a powerful fillip to develop further, now that the road has been built. The road serves directly 419 villages with a total population of 391,000. Along the road, trade centers and auto service stations were built providing economic opportunities to the inhabitants. Because of its height and salubrious climate,

the region can be developed into a tourist attraction with a series of hill stations that are not too distant from Jeddah's heat and humidity in summers. This road by all economic and technical standards, is a massive achievement, with total costs of SR. 1,602 million, including SR. 1,528 million as construction costs. Average construction cost per kilometer amounted to SR. 1,030,000 varying in accordance with the physical condition and types of construction used in the different sections.

Engineers who designed and worked on the road said that the road is the most expensive of all the Kingdom's roads. Yet it was the most difficult to implement, owing to the numerous mountains and high loads lying in its course; the different altitudes of land, the composition of rocks in the area it passes through. The project called

for the construction of a series of hill stations that are not too distant from Jeddah's heat and humidity in summers.

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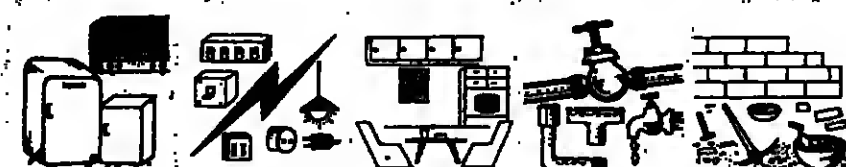
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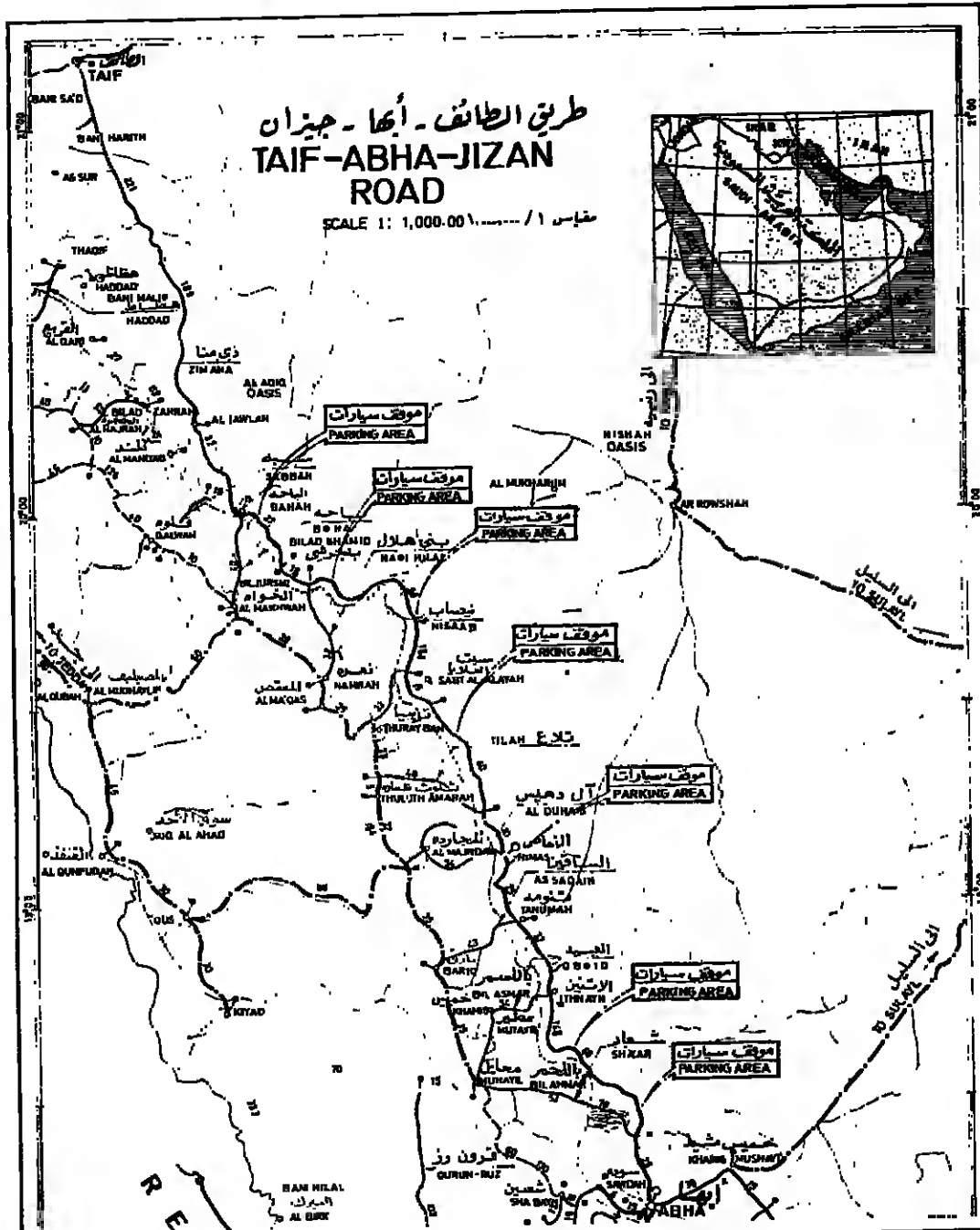
CUTS RIBBON: Crown Prince Fahd cutting the ribbon to open the new highway last week.

for the use of the most advanced techniques in road construction. The first ever tunnels to be dug in the Kingdom were made necessary by this road.

One of the technical difficulties encountered in the Abha Al-Darb section was the difference in altitude (reaching up

to 1500 meters.) To overcome this difficulty the road was made to slope down over a distance of 16 kilometers, necessitating a special type of construction technique, the first of its kind in Saudi Arabia. Some of the structures executed for the first time included high and

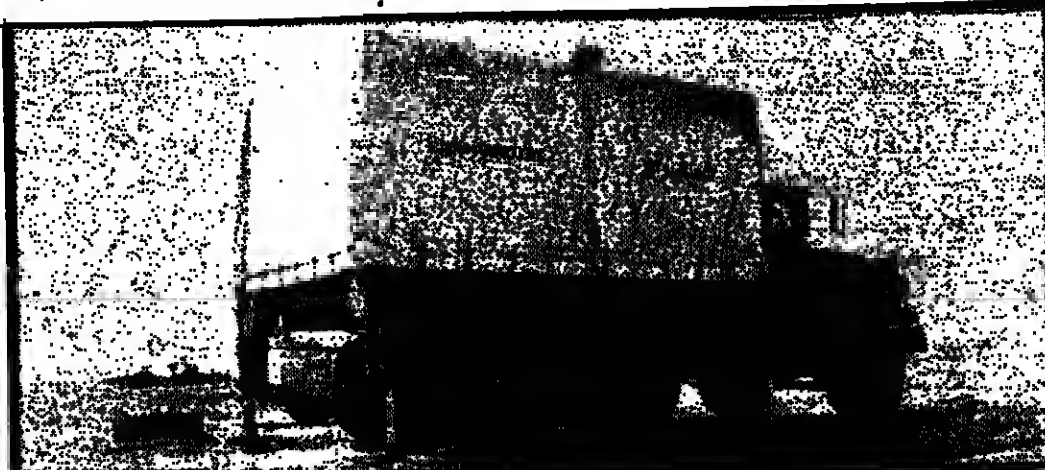
slender reinforced concrete piers with girder cross sections, stainless steel superstructures with reinforced concrete carriage-way slabs. Consultants: Rhein Ruhr Consultants Contractor in Charge of Execution: Binladen Establishment.



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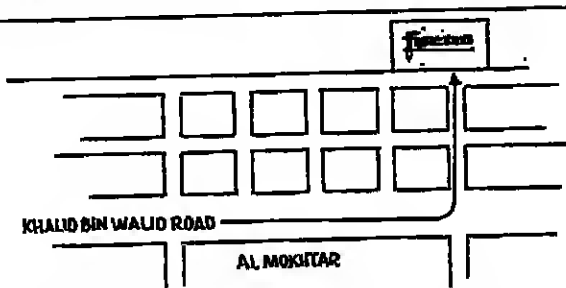
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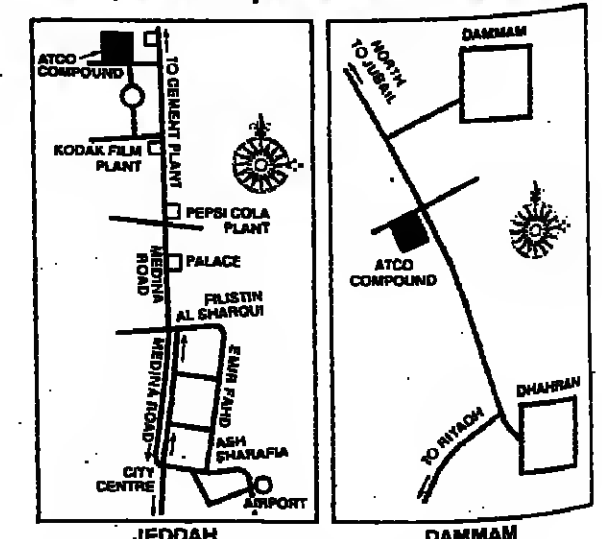
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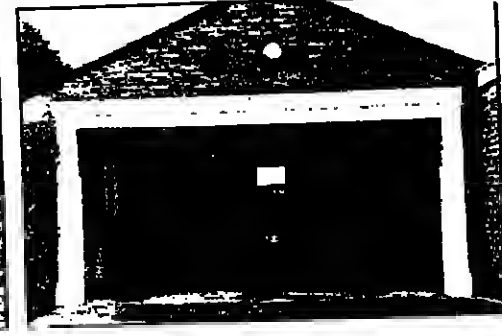
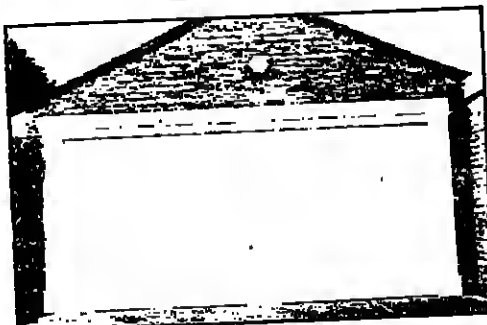
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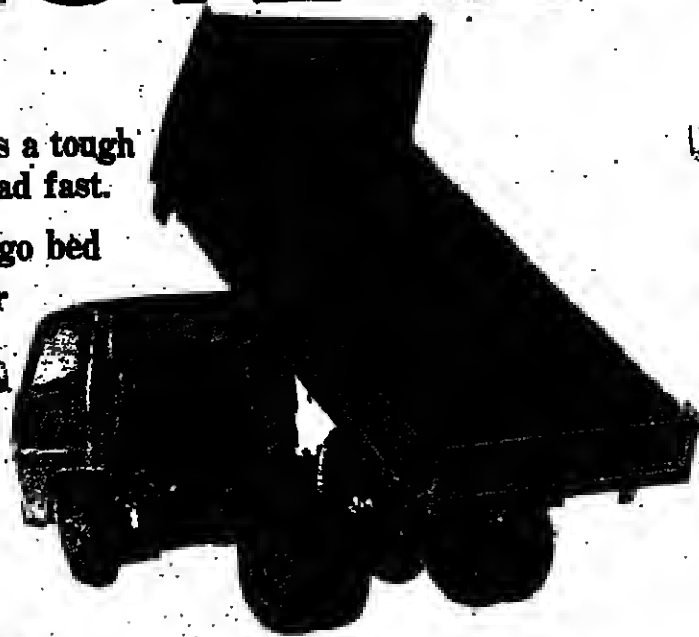
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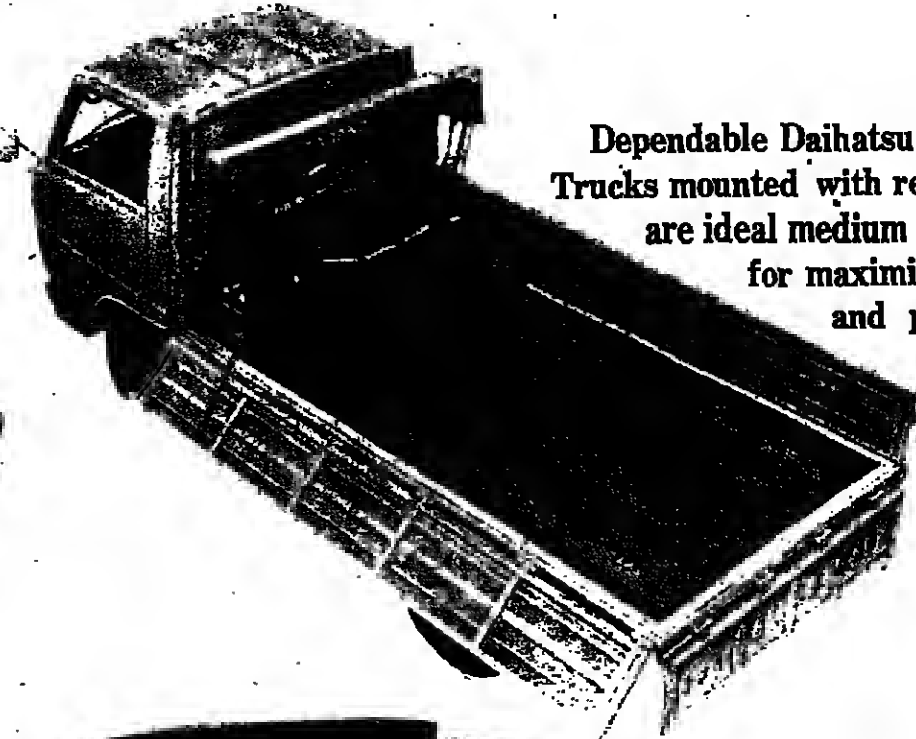
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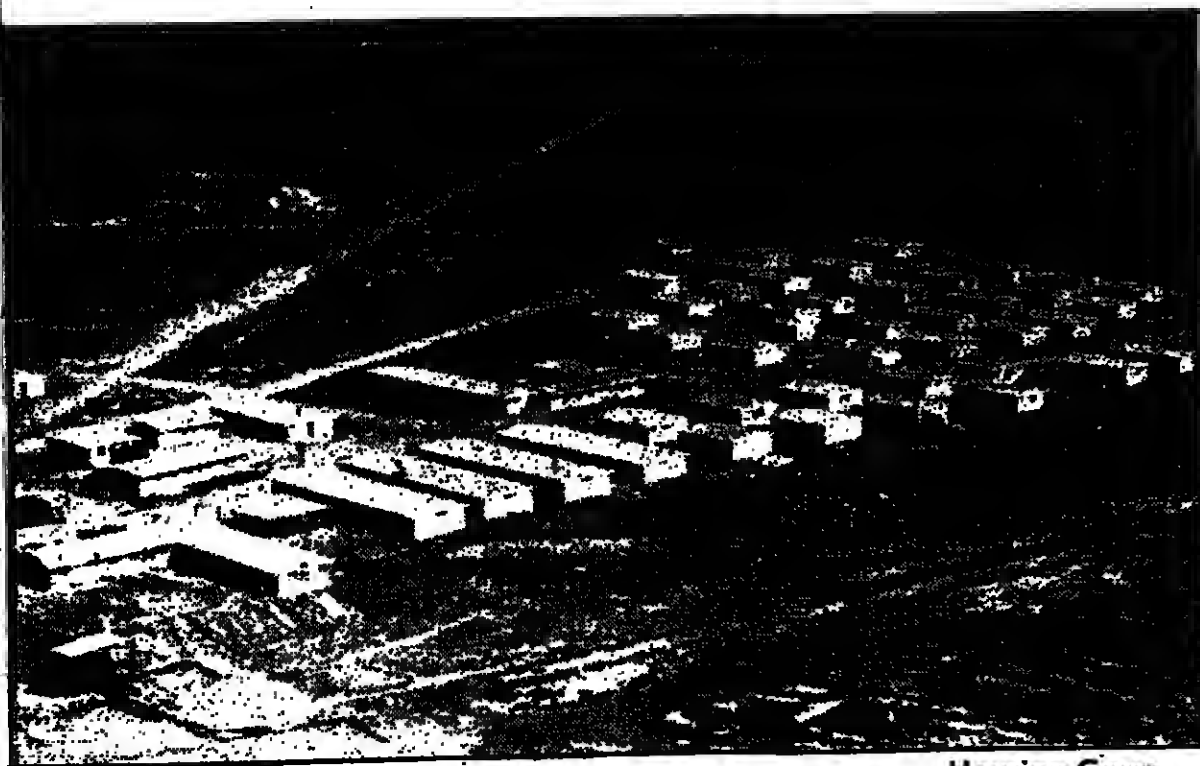
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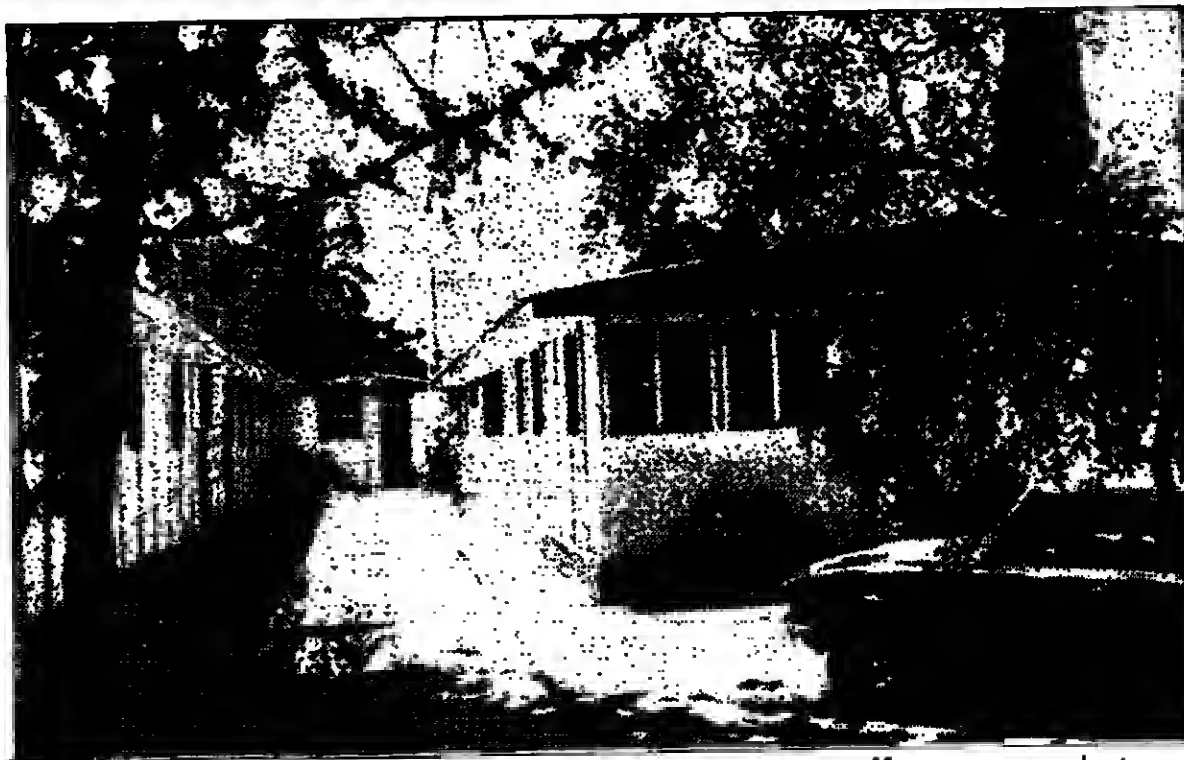
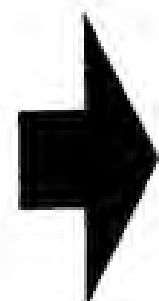


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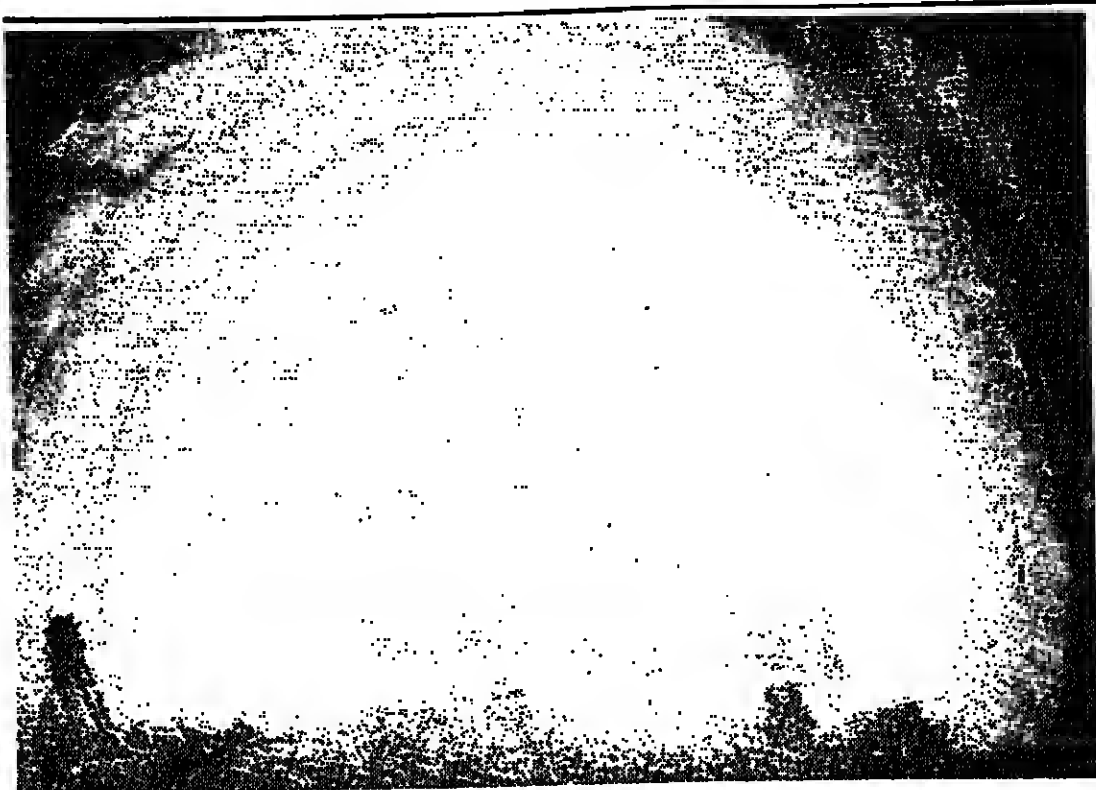
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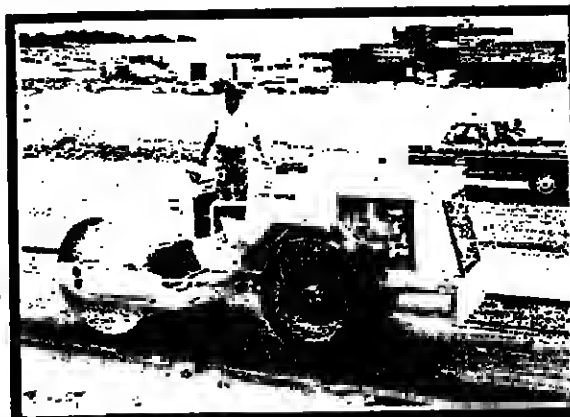
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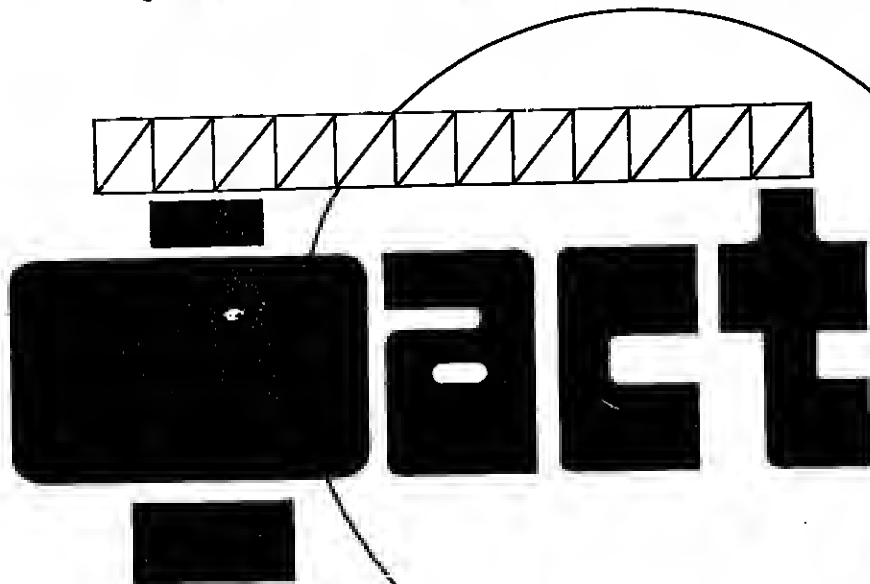
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Labor market stabilizing in construction sector

By A Staff Reporter
The labor market in Saudi Arabia's construction industry has gone a long way toward stabilizing and organizing it-

self. After the hiccup of the summer's crackdown on illegal residents, many of them casual day-laborers in the building trade, both wages and

labor movement are back to reasonable and manageable levels.

In particular the recent relaxation of the rules on the

transfer of sponsorship has already done a good deal to ease the problems smaller contractors face in taking on workers locally.

Contractors and managers report that wage rates for unskilled labor generally have gone up between three and five per cent since the deadline of the amnesty for illegal aliens to rectify their status. "Saudi Business" reported in the middle of last month that daily wages for casual laborers had gone up from between SR 35 and SR 65 per day before the amnesty to around SR 150. The consensus among companies now is that locally-hired and unskilled workers can command SR 80 a day.

The free flow of labor has to a great extent been reestablished, they say. One commented that there might have been a certain amount of panic among employers after deadline, seeing a shortage that was to a great extent artificial. Most employers of illegal labor took advantage of the amnesty to regularize things—the Ministry of Labor and Social Affairs reported that 103,323 people made their presence in the Kingdom legal under it. Such a shortage as there may have been in reality has now been greatly eased by more reliance on legal importing of workers.

Locally-hired and unskilled laborers are no longer the illegal aliens they often were six months ago, but certain nationalities, chiefly Yemenis, are granted work and residence permits, without being sponsored by any individual or company, under article 44 of the labor law. Employing them is quite in order.

But they represent only a small minority of unskilled labor in Saudi Arabia. Most construction businesses import their workforce under block visas—and the larger a company, the more likely it is to have a workforce entirely made up of people recruited abroad for a specific contract and for the duration of the job.

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Pakistani or Indian workers being cheated by their fellow-countrymen of what is to them a fat of money in return for a promise that is never kept of a lucrative job in the Gulf, firms say that they have found genuine labor contractors in the subcontinent and further east both efficient and useful.

Block workers now tend to earn some SR40 to SR50 per day—a lower figure than their casual colleagues, but they are given accommodation paid for Fridays and have holiday entitlements and all the usual benefits.

Companies vary in their experience of the block visa system. One found no fault with the Saudi end of the arrange-

ment, but said that delay arose through dilatoriness on the part of the bureaucracies of the Far Eastern countries the workers were coming from.

Block visas are only issued by contracting companies if they can produce their contract and building permit. Consequently, there can be a time gap between the issuing of a permit and the arrival of the workers—in some cases running two or three months into the contract.

Companies are looking forward to the day when the planned comprehensive network of government-licensed labor offices comes into operation, to provide a reliable supply of temporary workers.

Although it might be thought that the enforcement of the law on illegal residence in the Kingdom might have made an already straitened labor market extremely tight, contractors say that it has instead regulated the flow of workers, and made their jobs easier. The increase in overheads that flows from sponsoring an employee are more than offset by the guarantee of an ordered supply.

At the same time, the regulation issued on Oct. 10 allowing transfers of sponsorship to similar work between employers who agree on the move is beginning to ease the market. Temporary secondment in par-

ticular has already been a help to smaller firms needing immediate labor.

The greater freedom of movement has also meant that some companies have begun to find people coming to them looking for work.

There is no question, however, that there is still a shortage of unskilled laborers, and that is despite the expectation that as the new systems become established things will ease in time.

The situation would seem different with skilled and semi-skilled workers. No shortages have been reported in those categories.

The lower levels of manage-

rial and technical staff are reported as stable as in the past. This is almost entirely due to the lack of a free market in employees at the senior executive level.

Almost all those categories of employees are foreigners on a one-year, 18-month or two-year contracts. If a contractor tries to recruit in the Kingdom, he would likely be poaching off other firms. Consequently, it is a market as ordered as any. By and large those employees tend to come from the Third World: other Arab countries the Far East or India.

Their salaries are reported to have risen by about ten per-

cent over the past year—much in line with the official rate of inflation in the cost of living. They can now earn between SR4,000 and SR6,000 per month, a figure consistent over much of the Kingdom.

The top management and technical positions are predominantly filled by Western expatriates. Again recruitment abroad for a fixed term as the usual form of employment means that the position there is as stable as it could be. Their salaries too have risen by some ten per cent in the past year, to a range of from SR80,000 to SR120,000 a year.

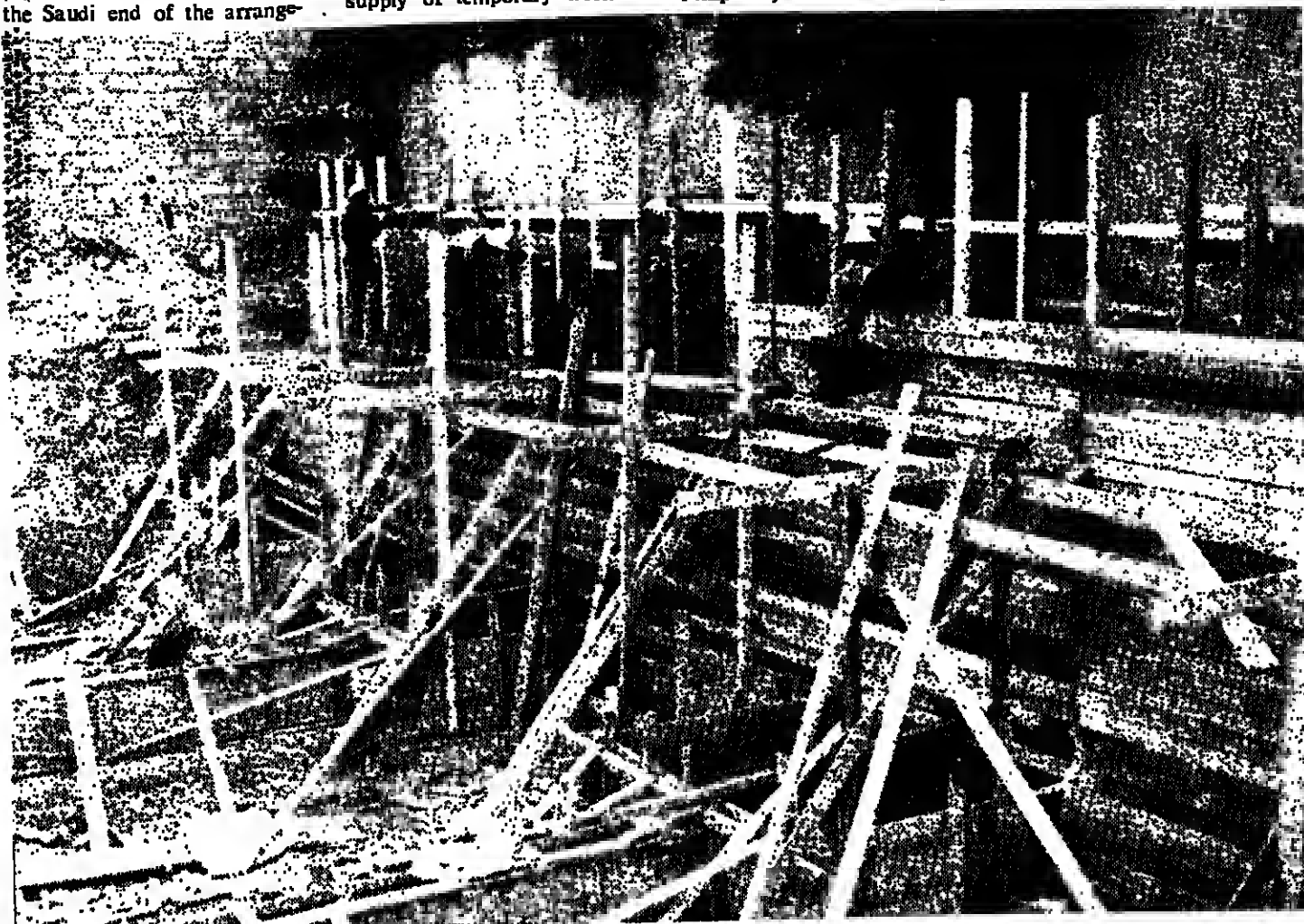
One peculiarity of the nature of employment at that level is that there seems to be

a disproportionate number of Europeans to Americans in the Kingdom. Many firms identify two reasons for that. The traditional insularity of Americans makes them less aware of opportunities abroad, and their tax laws are not an incentive for them to leave their own country.

By contrast, many European countries tax their people working at home and not those working abroad. It is therefore easier to recruit a high-caliber European than American. It is still, though, far too early to predict how that position might change after last week's amendments of the American expatriates' tax re-

gulations. Contractors report different degrees of success in attracting Saudi nationals to work for them.

But the firms say that the growing facilities for vocational training should eventually provide sufficient Saudis with the necessary expertise, much as the longer-established system of training abroad has created an increasing number of Saudis with technical and professional skills. But until then, many contractors find that private employment is less attractive to trained Saudis than either setting up in business for themselves or entering government service.



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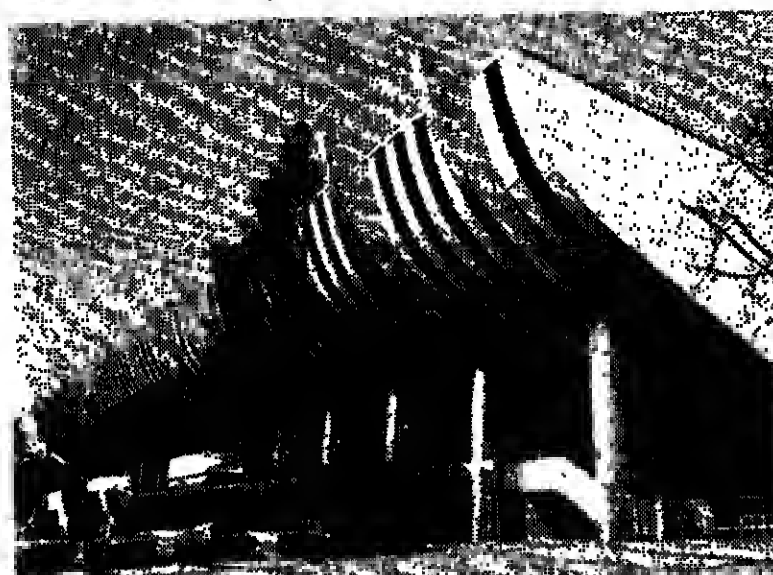
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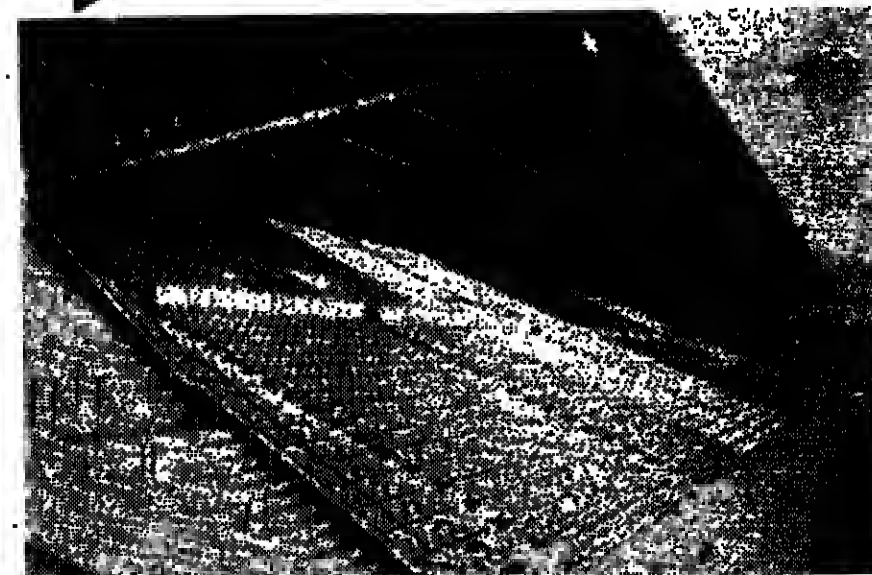
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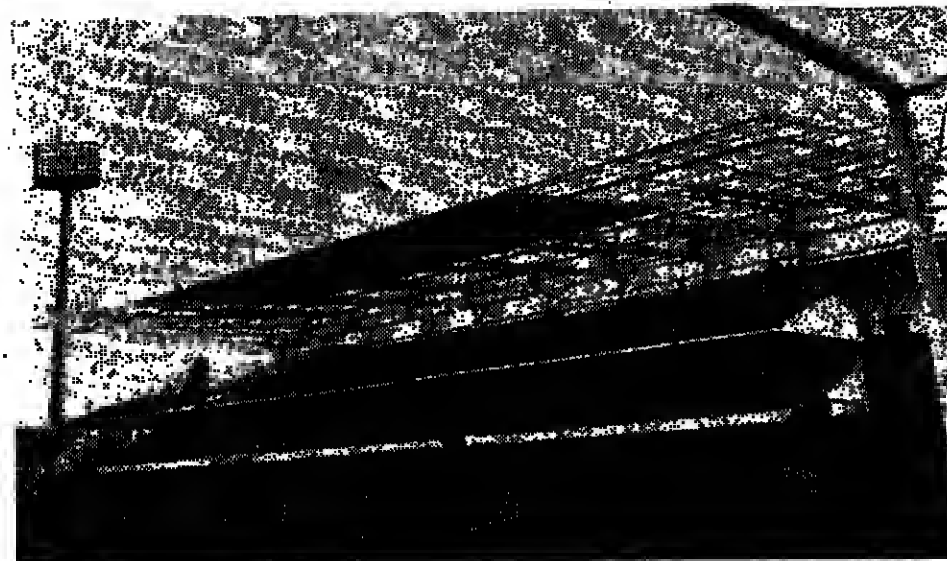
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UAE seawater technology helping Saudi construction

Saudi Arabia's construction industry is getting assistance from reverse osmosis seawater desalting technology at a concrete plant in the neighboring United Arab Emirates.

The plant, located in Ras Al Khaimah, United Arab Emirates, manufactures precast concrete with fresh water produced by a 150,000 gallon-per-day seawater desalting facility using Du Pont Company B-10 "Permapex" permeators. Fresh water is needed to make durable concrete which will not crumble.

The pre-cast concrete is used in Saudi construction projects. Several hundred people working at the plant, which is operated by Raymond International Inc. of Houston, also use the desalted water for drinking, cooking and washing.

Seawater is being used because inland supplies of well water with lower salt content are not sufficient and costs for trucking water to the plant site are prohibitive.

The reverse osmosis desalination facility was designed and built by Polymetrics Inc. of Santa Clara, Calif., and began operating in February 1978. The facility consists of 10 separate 15,000 gallon-per-day sections. The design insures a constant supply of fresh water to the concrete plant and permits moving sections to other locations in the future.

Raymond International chose reverse osmosis because it uses less energy than the more traditional method of distillation which requires transferring seawater into steam before condensing fresh water.

Reverse osmosis technology uses semipermeable membranes,

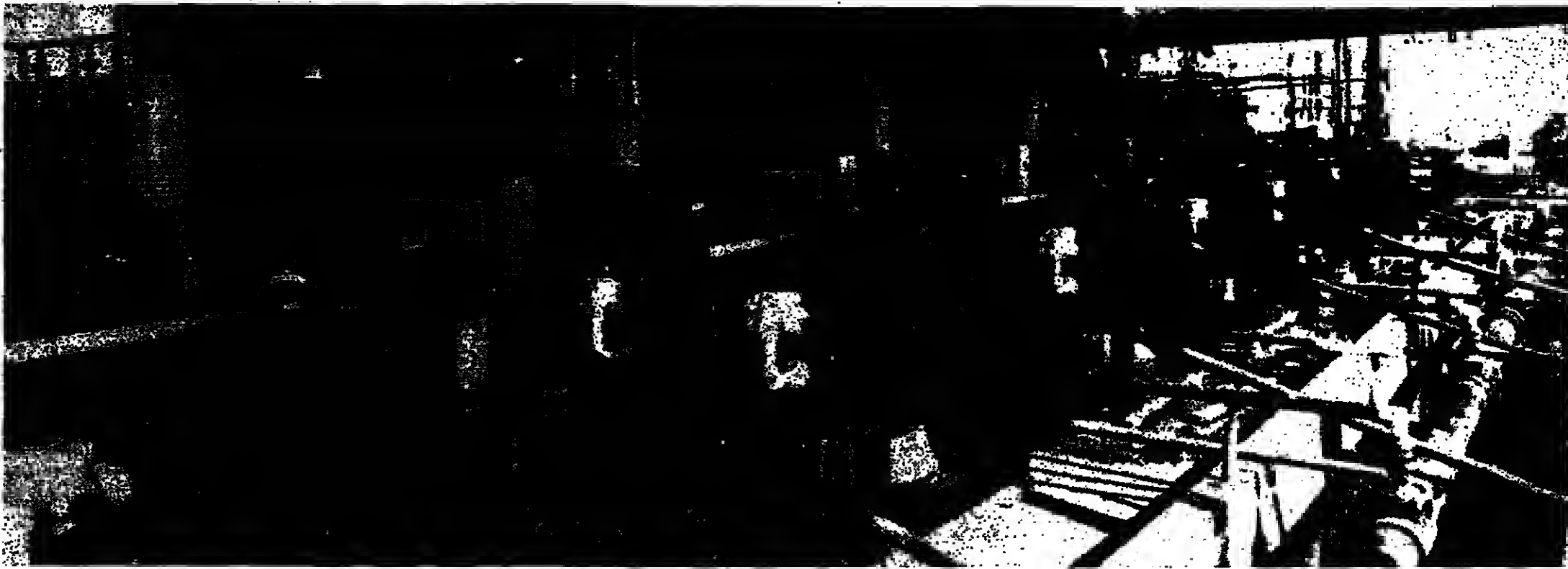
housed in cylindrical devices called permeators, to remove salt and other impurities from water. Pressure is used to force water through the membranes, which impede the passage of salt. Membranes used in "Permapex" permeators are hair-sized hollow fibres made of a tough aramid plastic which is not subject to biological attack and resists chemical degradation.

The Du Pont permeators are the only reverse osmosis devices commercially available which produce, in one step, potable water from typical seawater. They remove more than 98.5 percent of the total dissolved solids (TDS) in typical seawater. Seawater at Ras Al Khaimah, for example, has a TDS of 40,000 parts per million (ppm) and the more than 150,000 gallons of fresh water produced each day contains about 400 ppm.

The B-10 permeators are being used in 16 countries around the world to desalt seawater. Offshore oil drilling platforms located in the Gulf of Mexico, the North Sea, and the Far East use the permeators to make fresh water.

Next year, a complex of systems with a combined capacity of 3.3 million gallons per day will begin desalting water from the Caspian Sea in the Soviet Union. The desalted water will be used to produce steam for injection into wells to increase the production of crude oil.

In Riyadh, B-9 permeators will be used in a complex of five plants desalting brackish well water to supply 58 million gallons per day of potable water beginning later this year.



Fresh water from the sea is produced in Ras Al Khaimah by this 150,000-gallon-per-day desalting facility using 8-inch diameter reverse osmosis permeators. The fresh water is used by an adjacent concrete plant which makes precast concrete for use in Saudi Arabia.

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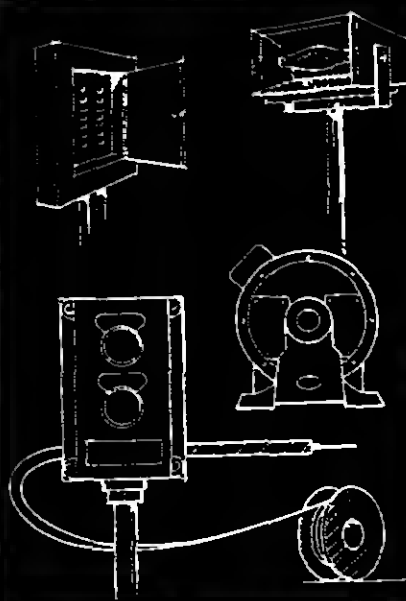
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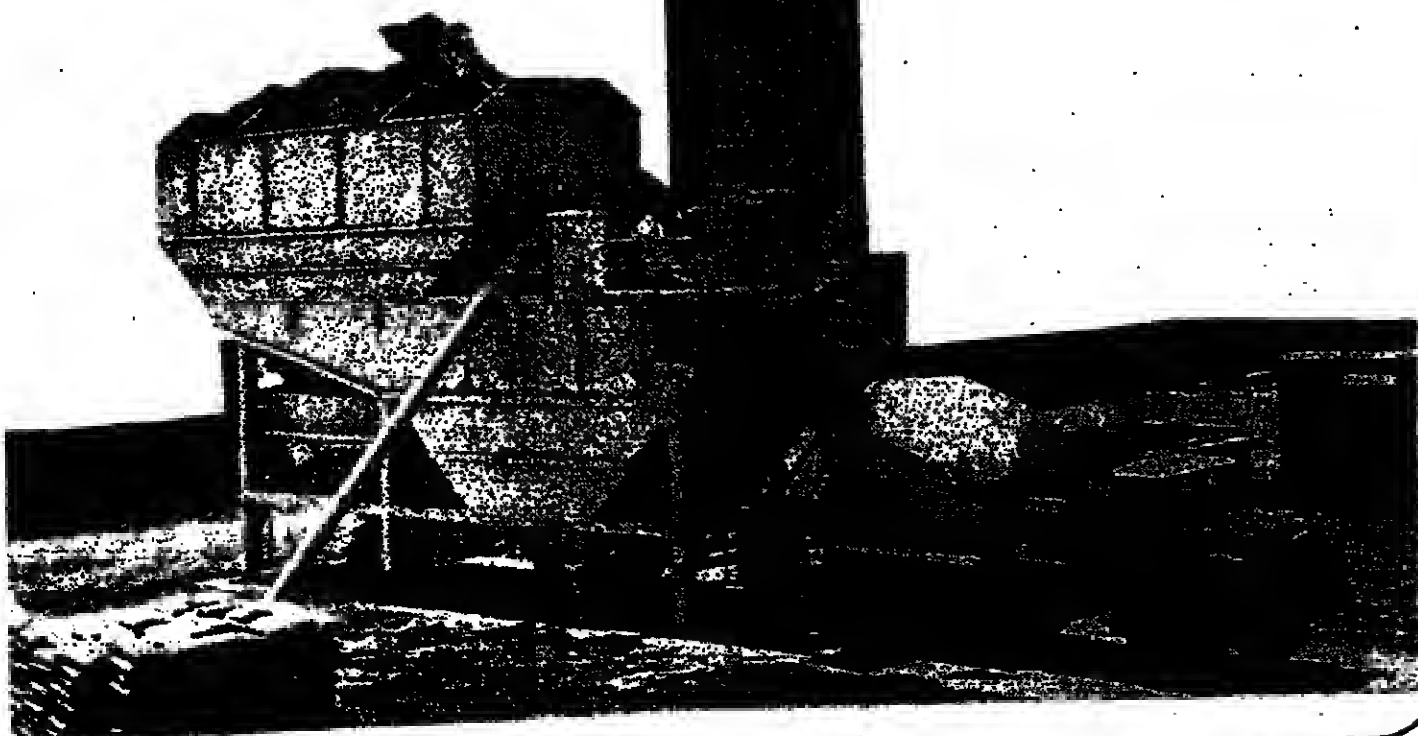
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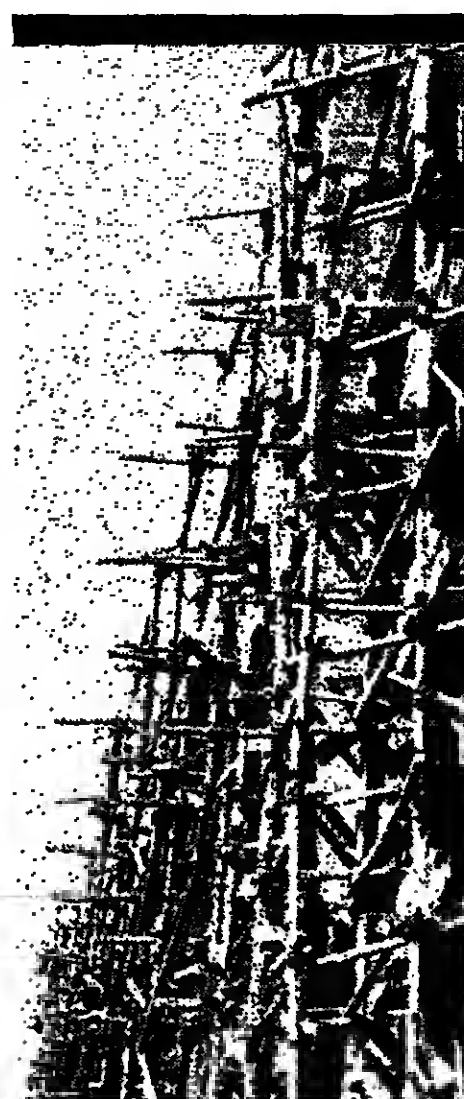
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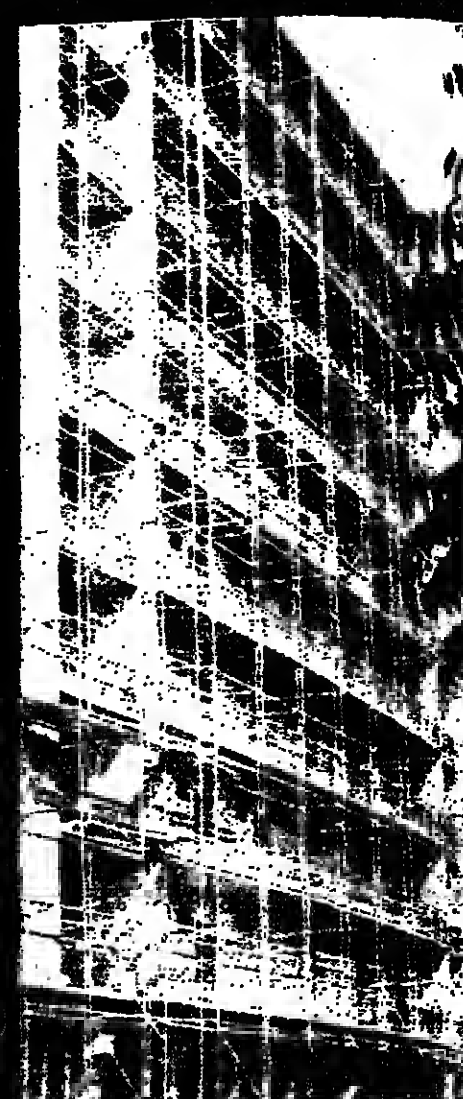
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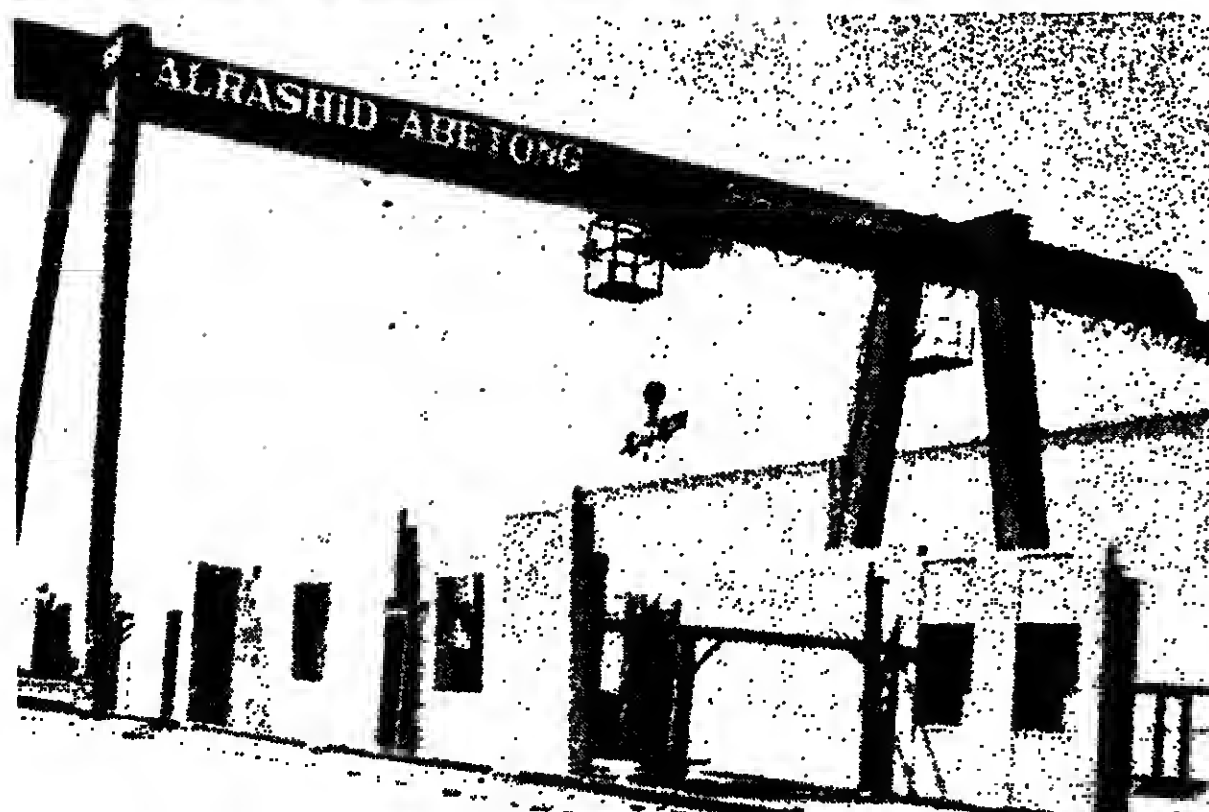


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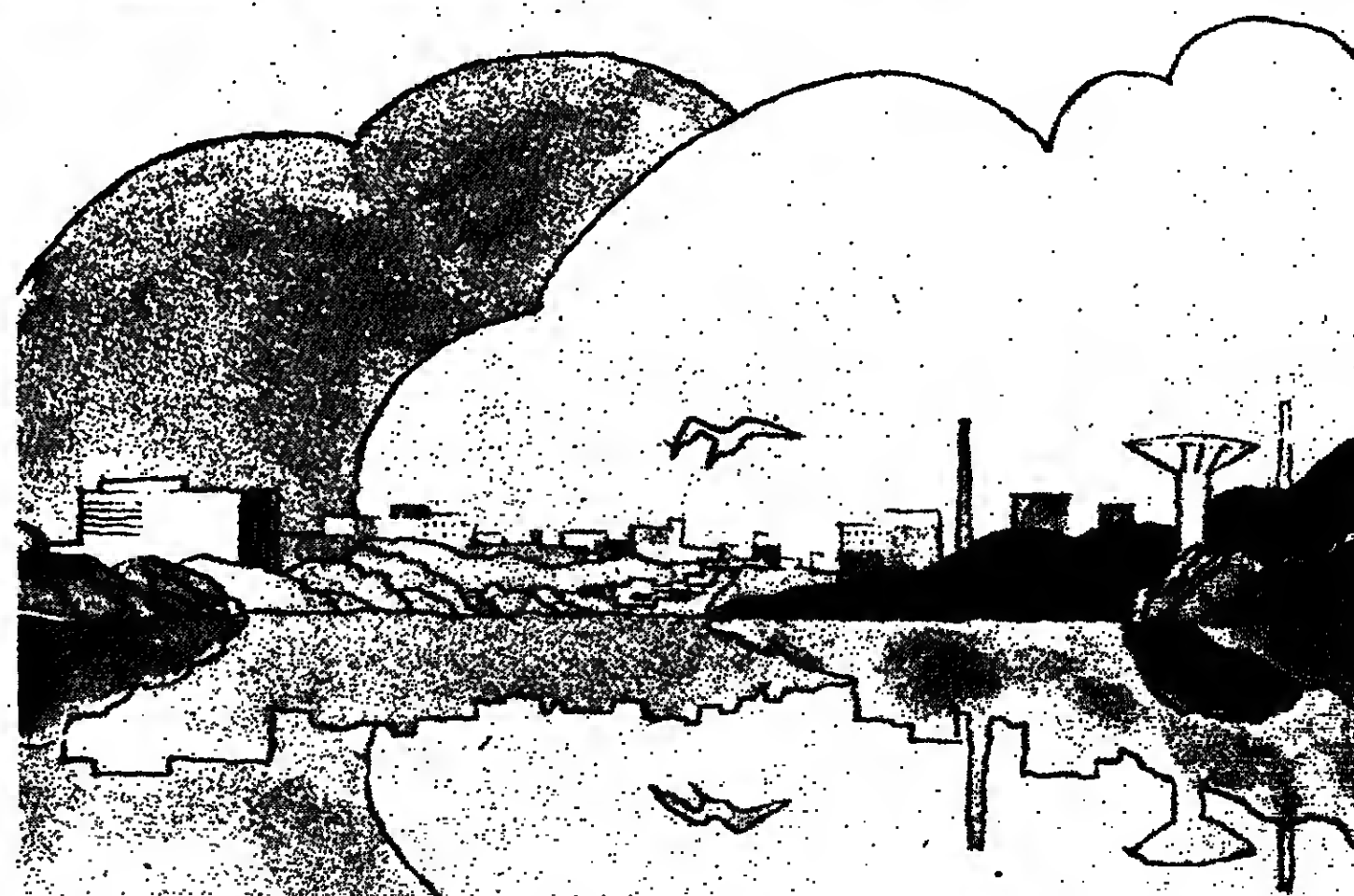
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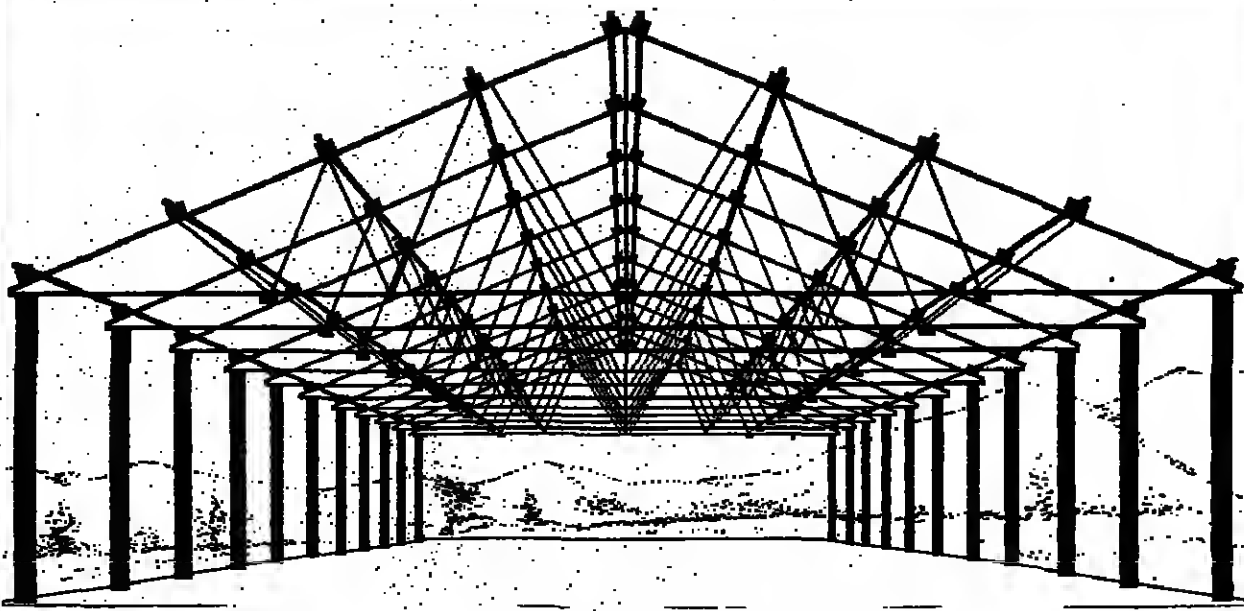
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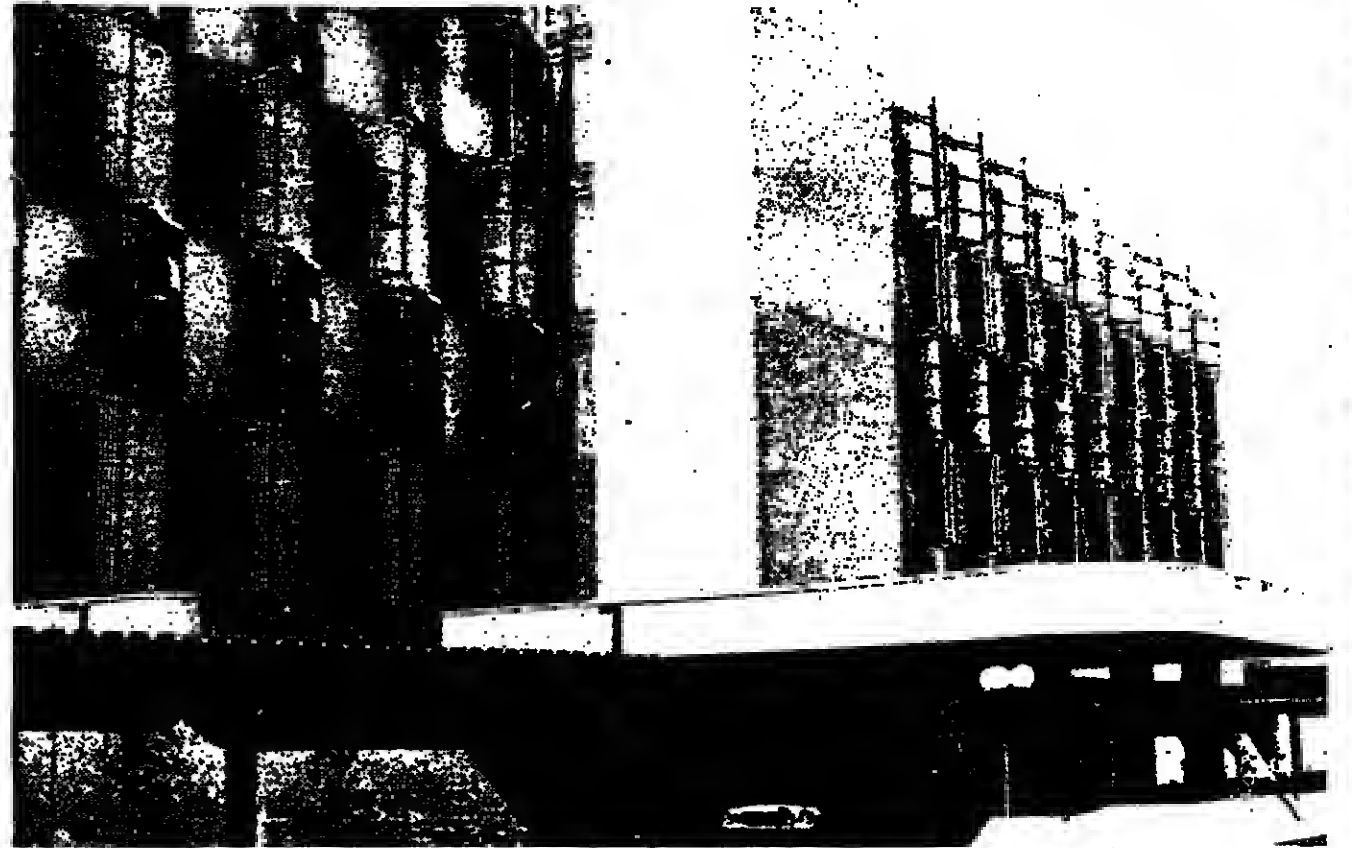
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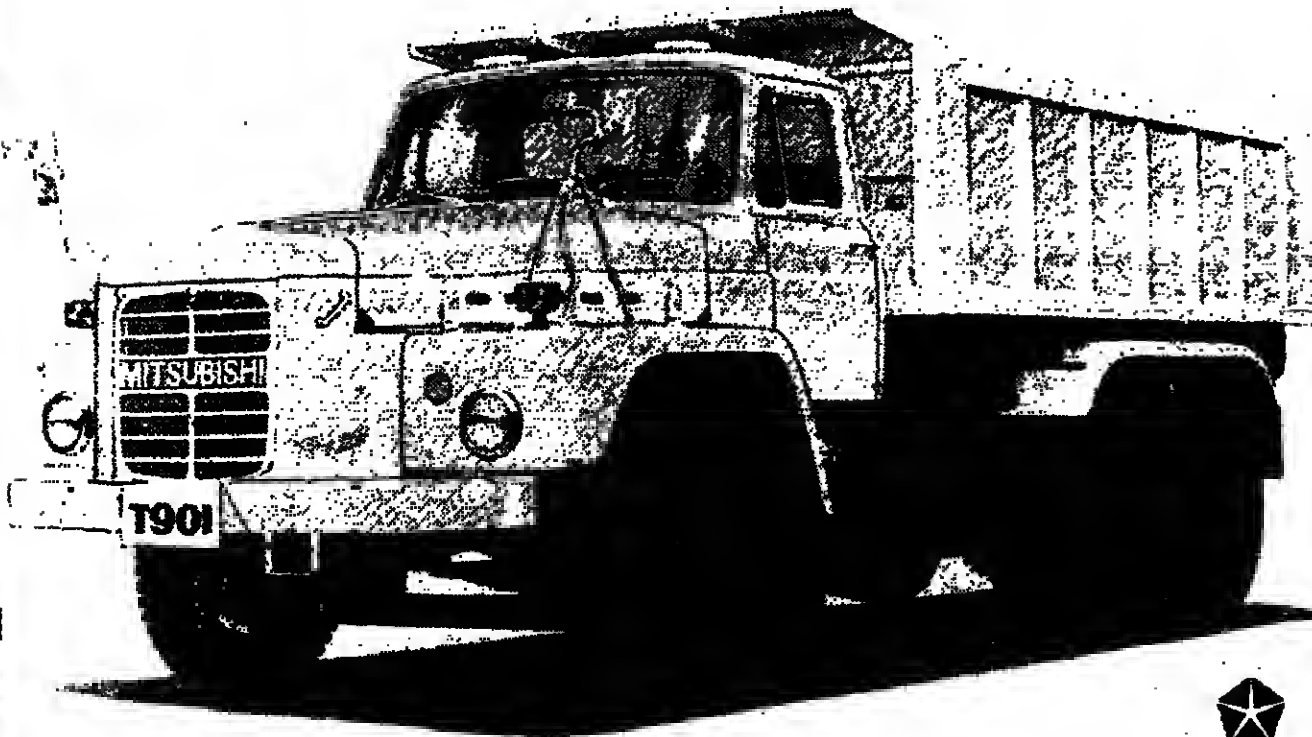
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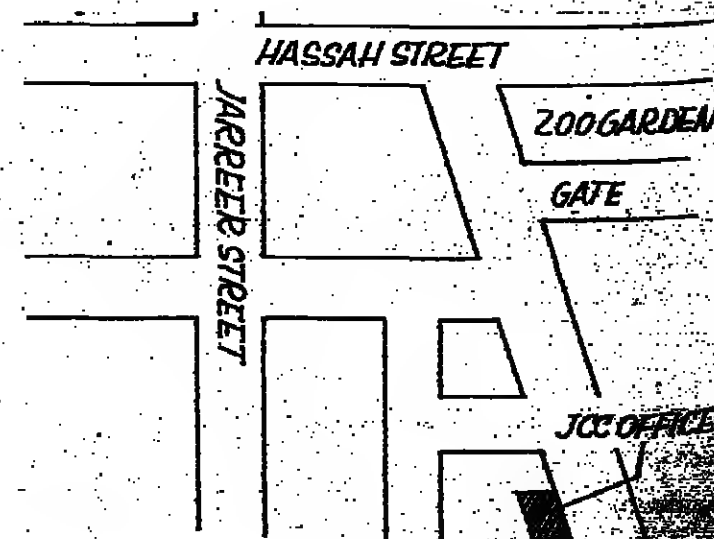
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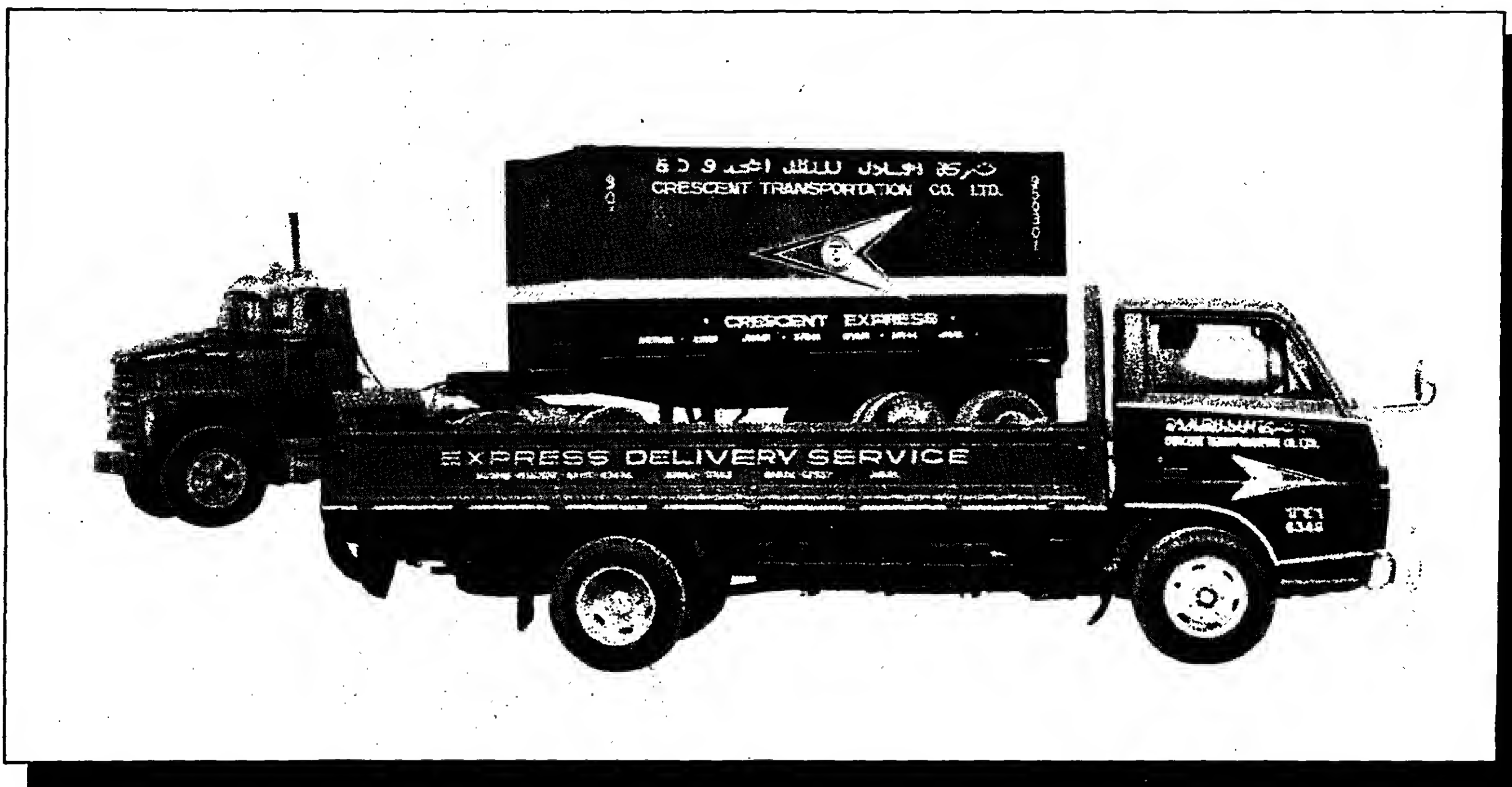
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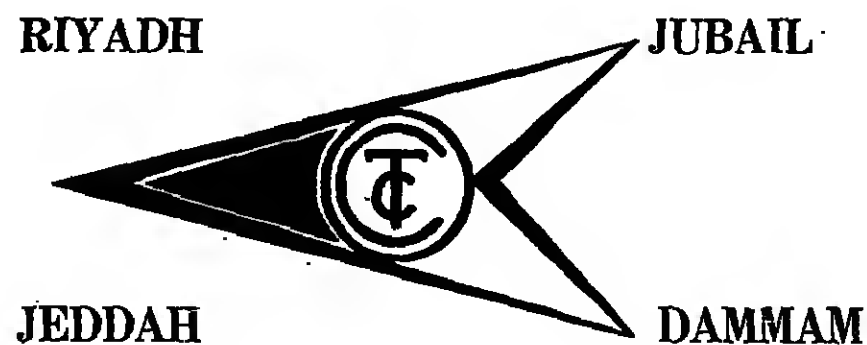
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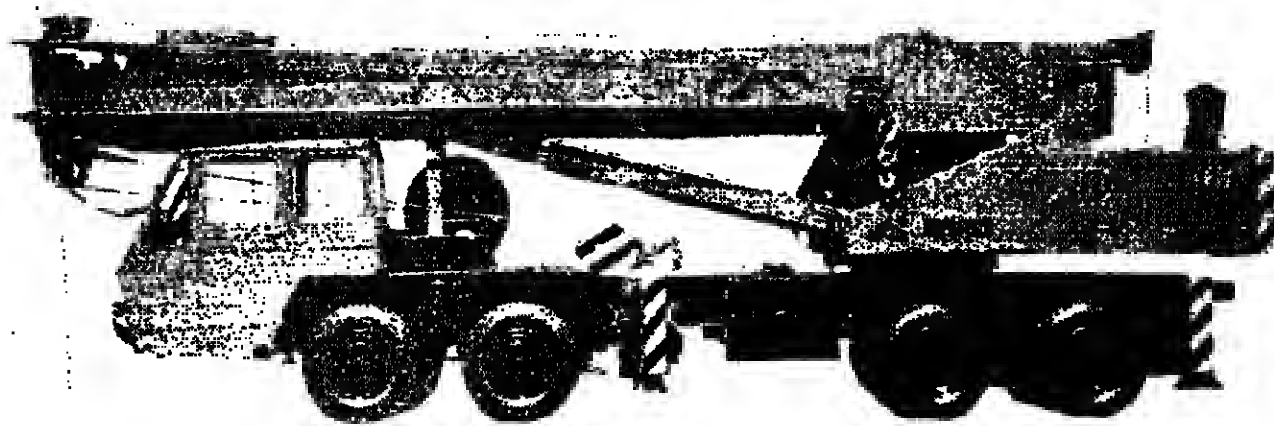
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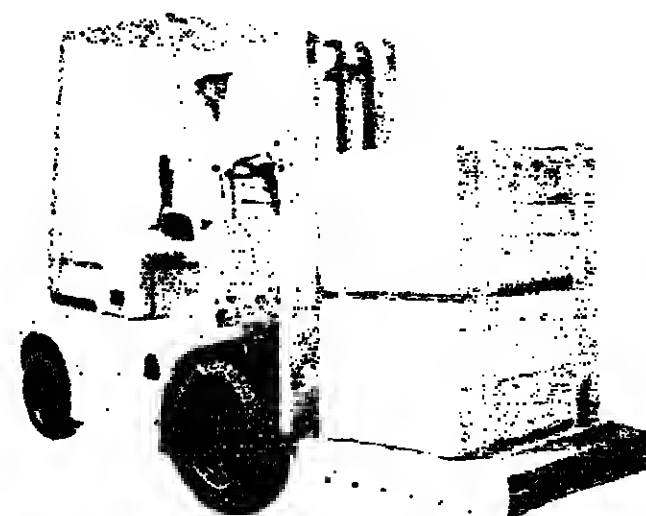
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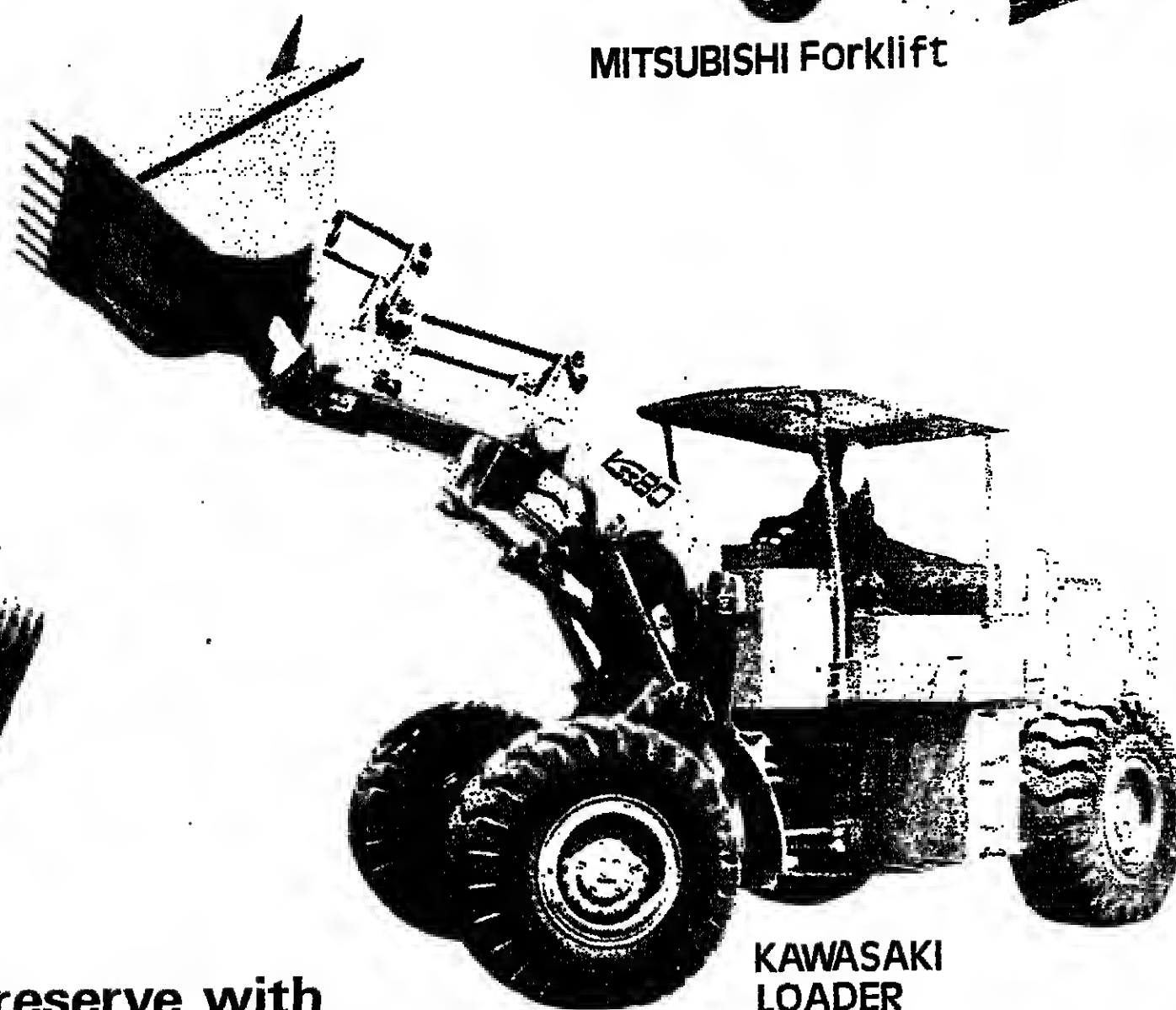
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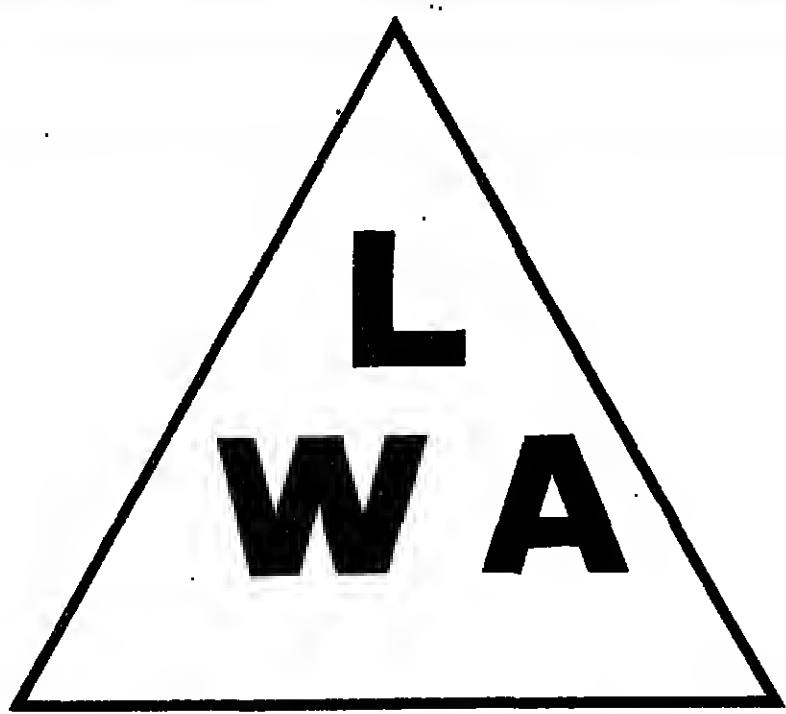


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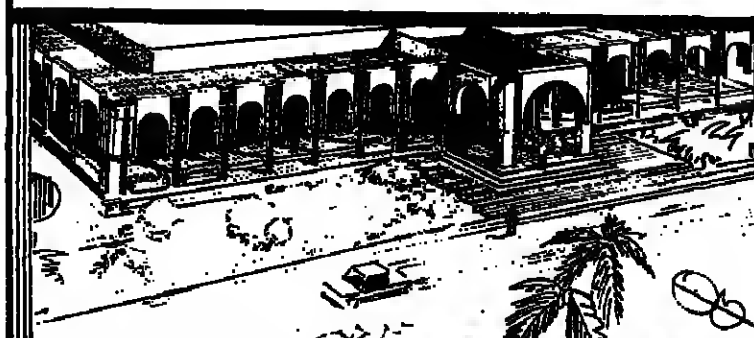
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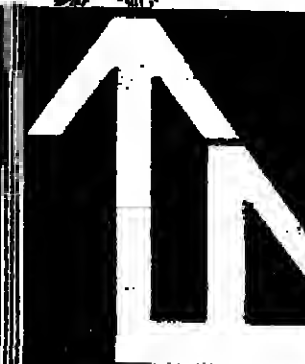
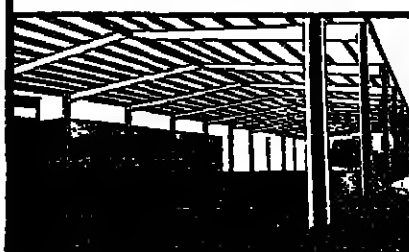
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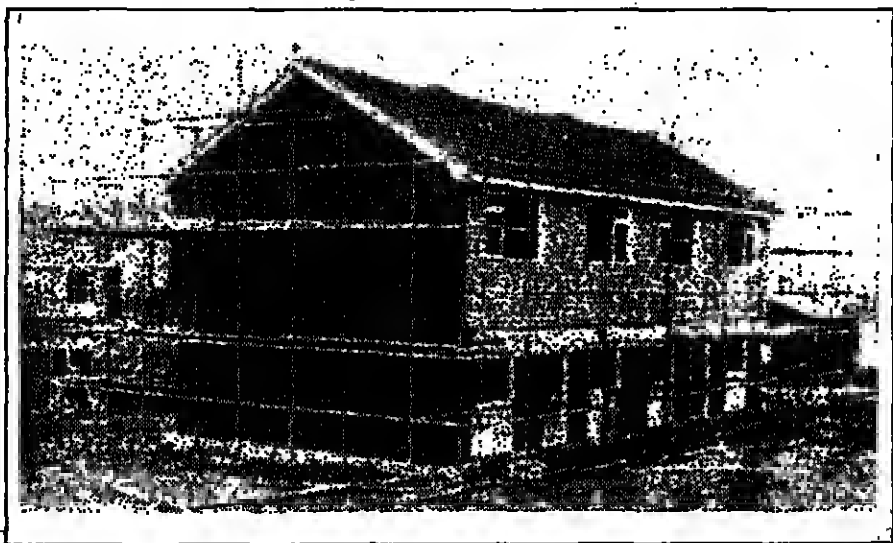
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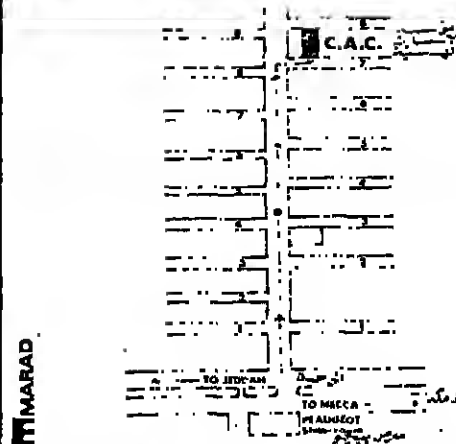
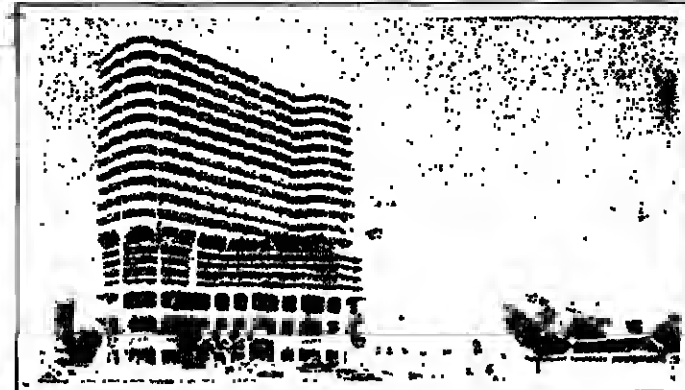
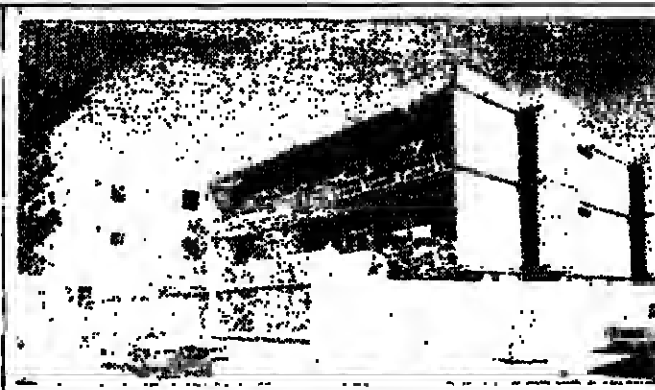
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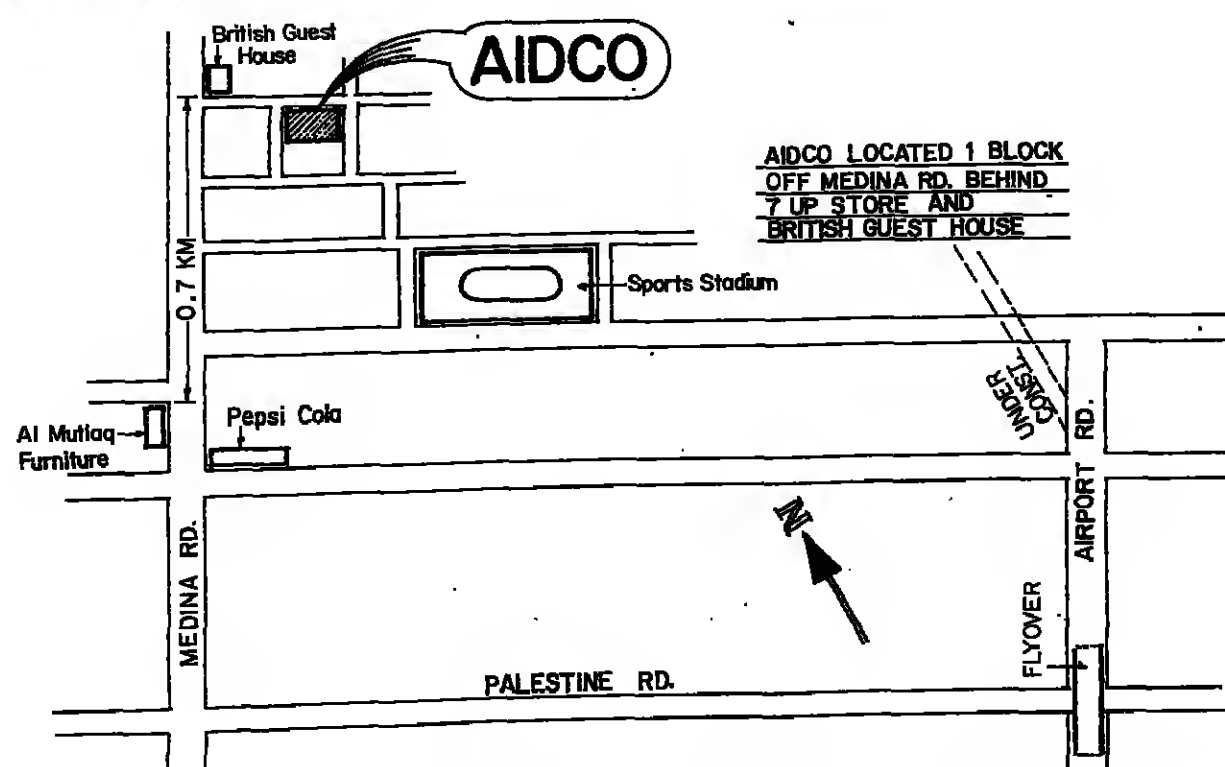
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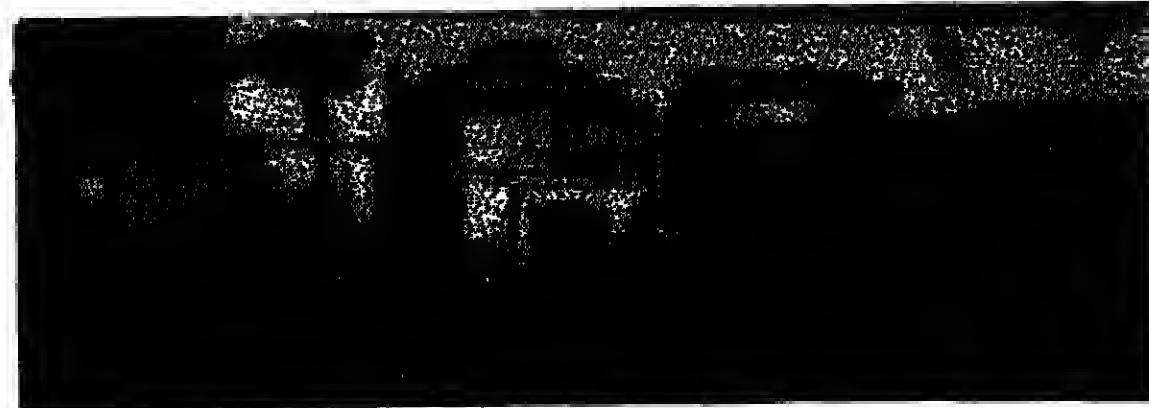


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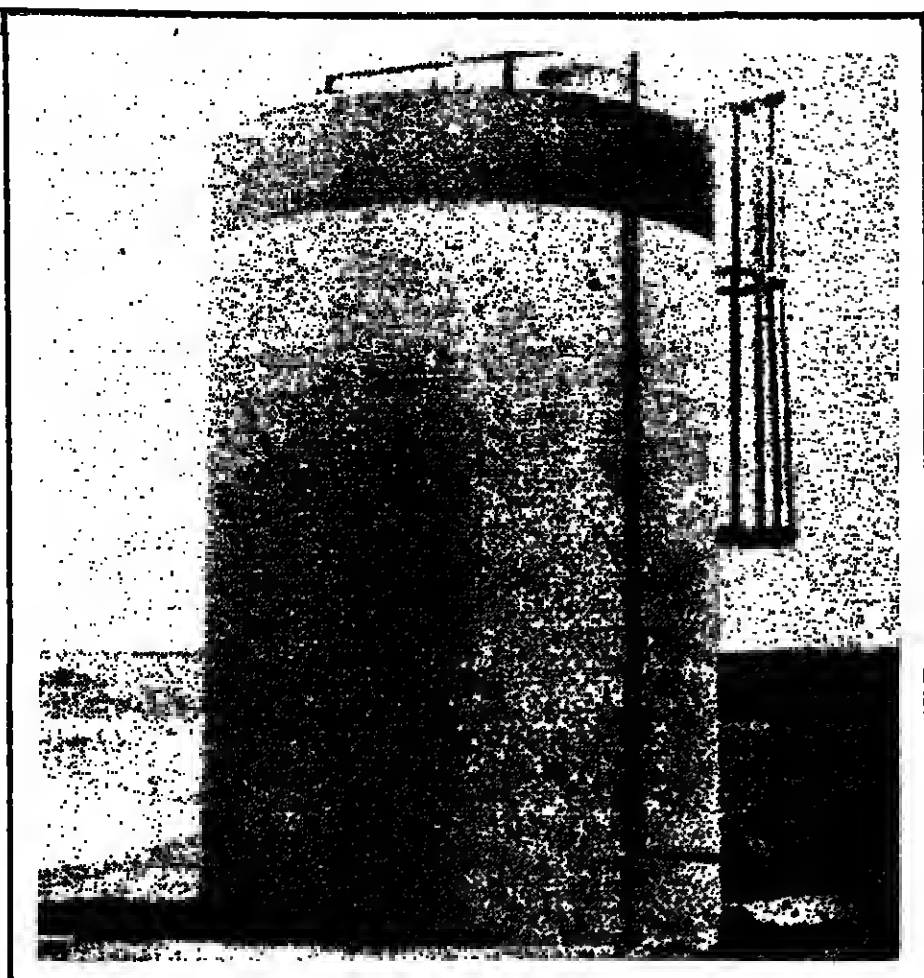
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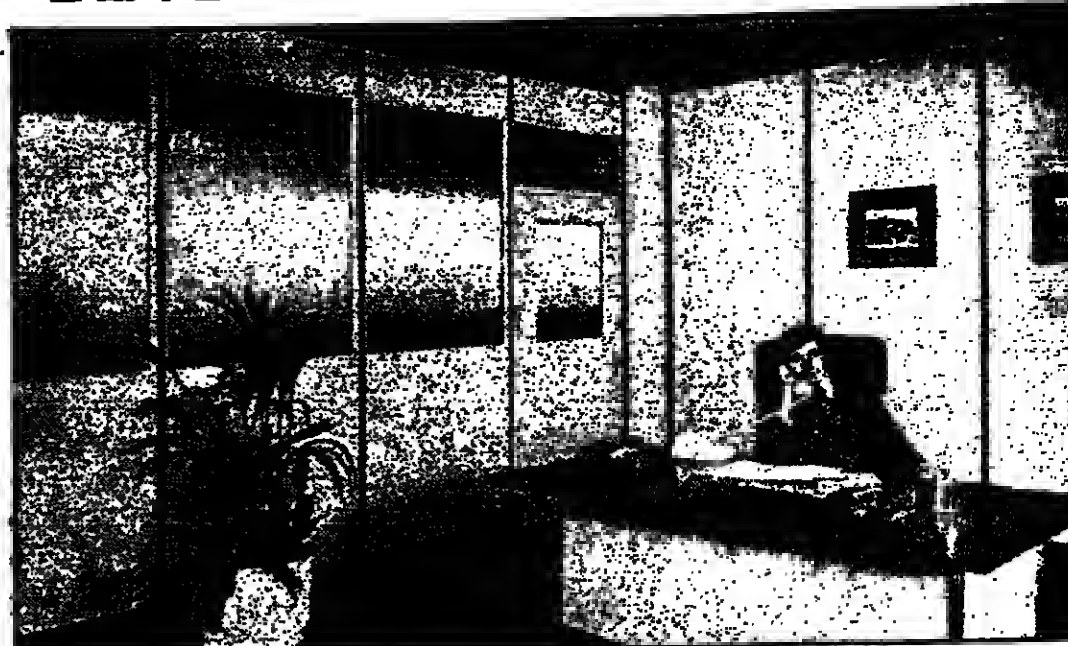
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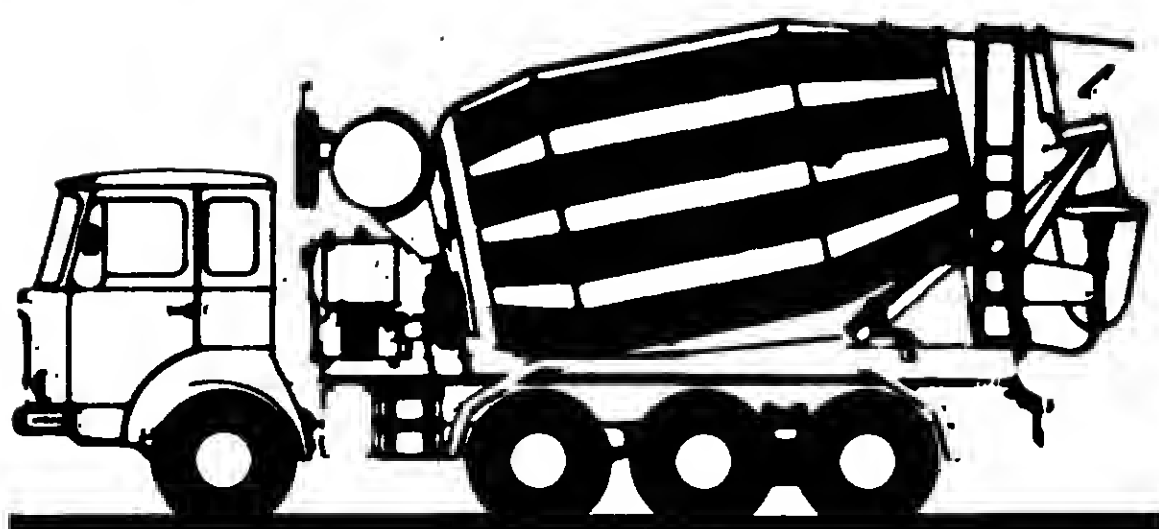
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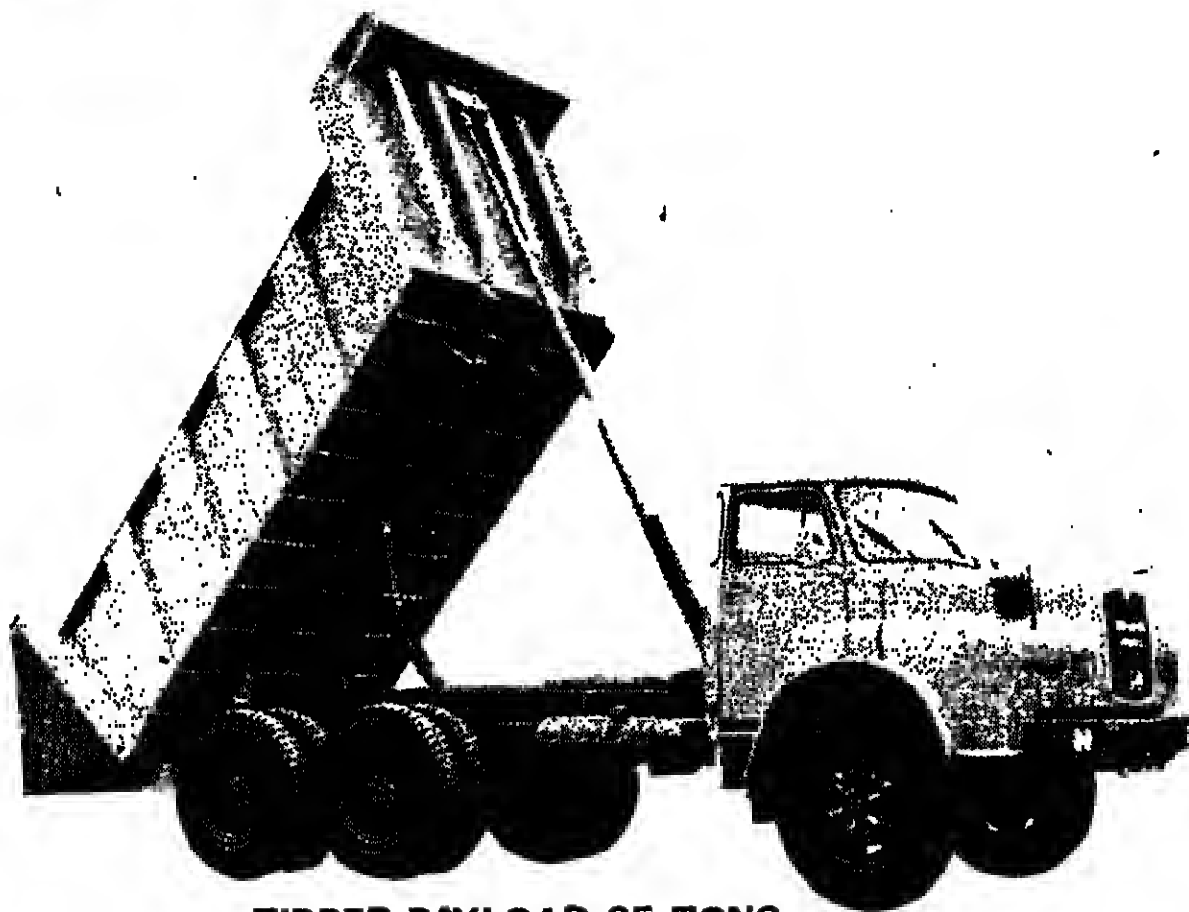
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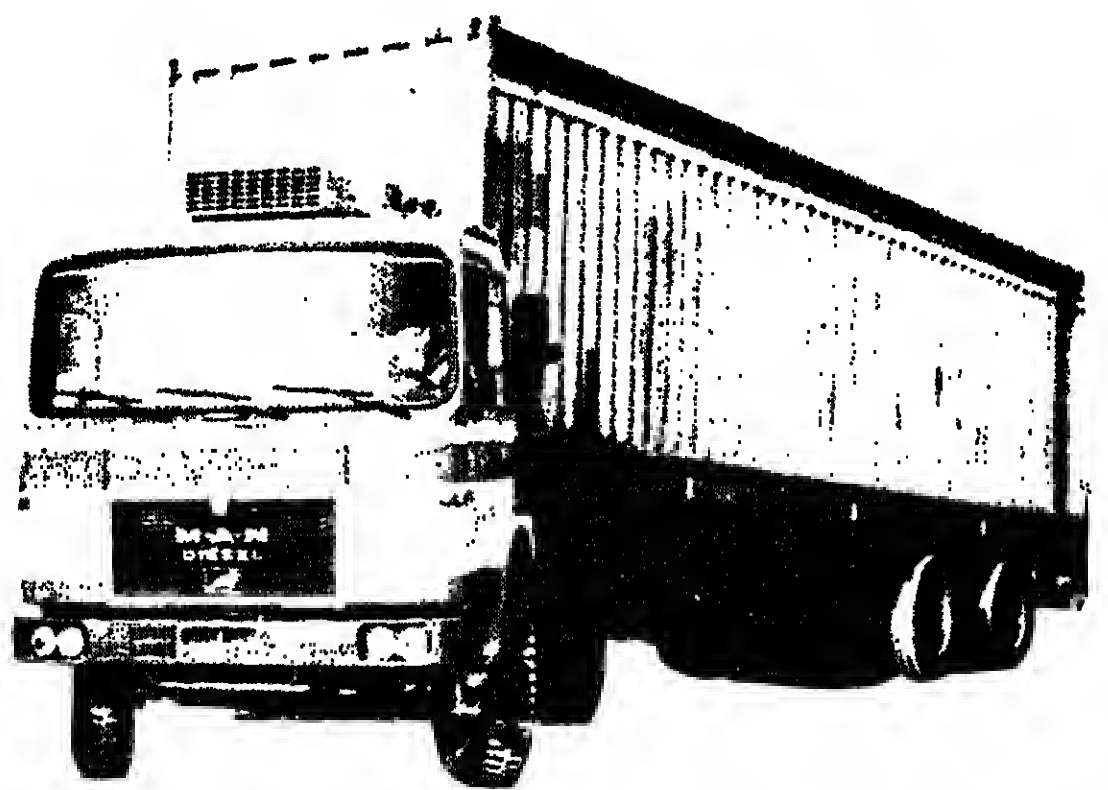
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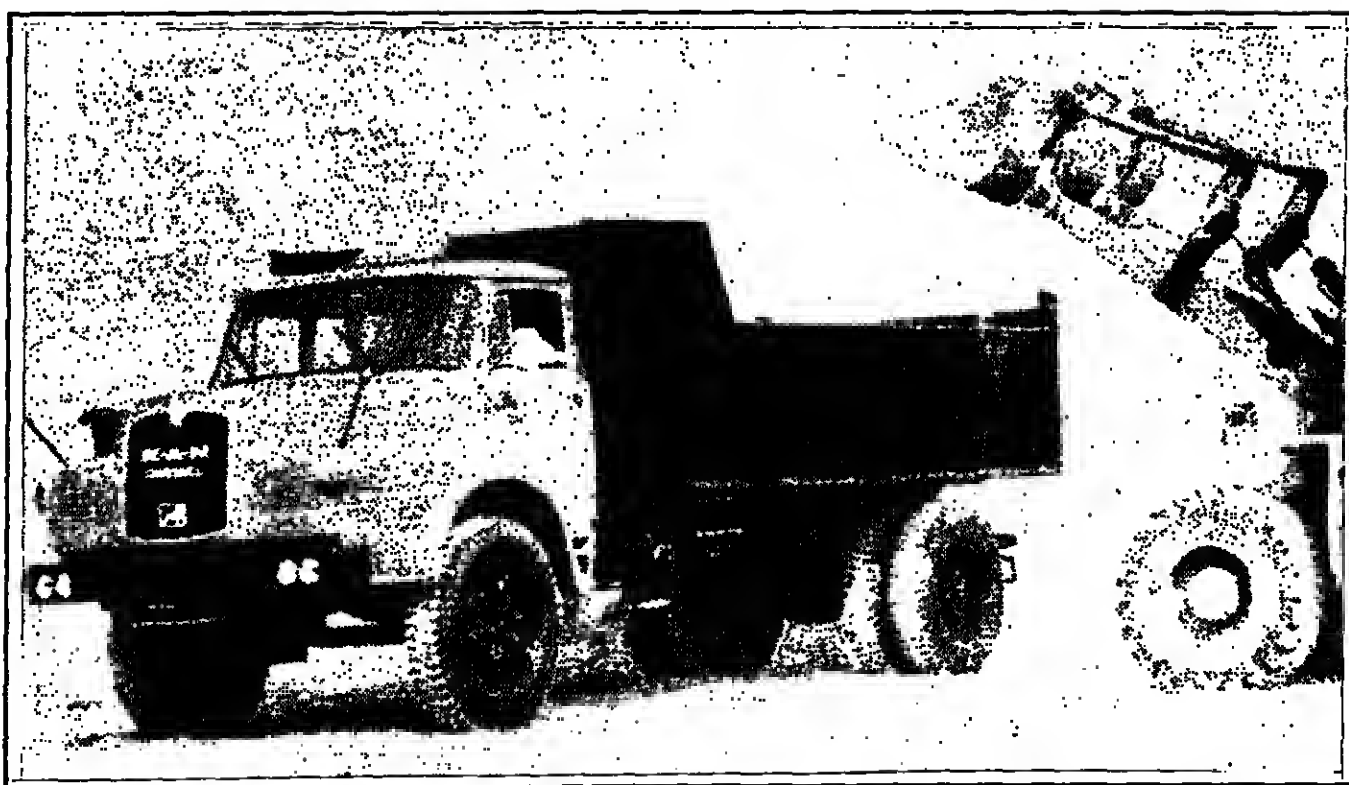
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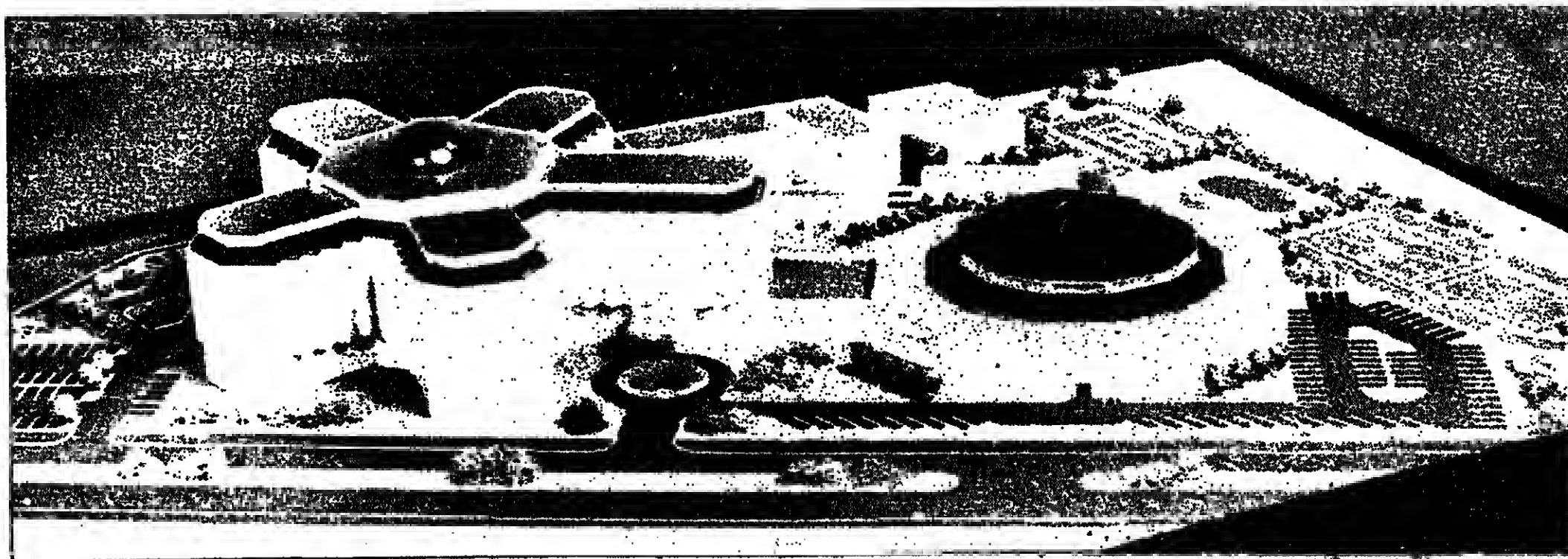
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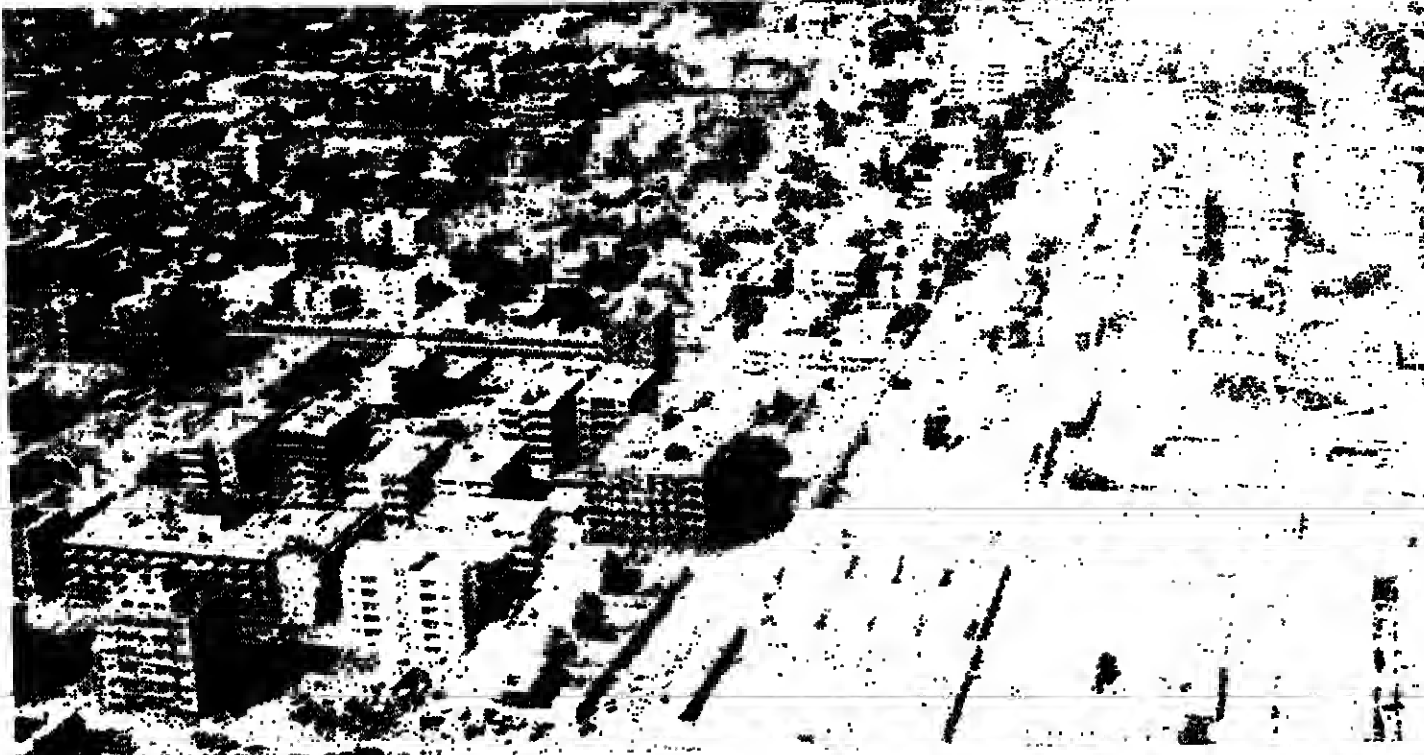
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CONSTRUCTION SUPPLEMENT



Middle East, Saudi construction boom continues

By Anthony R. Davis

Editor's note: Anthony R. Davis is editor-in-chief of "Middle East Construction" and "Middle East Architectural Design."

A quick look at development projects currently underway in Saudi Arabia provides ample evidence that the construction boom is continuing at a remarkable pace. The value of contracts for port development alone amounts to a staggering \$3,249 million. Airport construction is valued at \$599 million and major road schemes another \$670 million. Saudi Arabia's second five-year development plan, originally set at \$142 billion, is likely to double by the end of the quinquennium if world inflation continues at its present level.

Among projects now started, two will have far-reaching consequences. It is confidently expected, for example, that Saudi Arabia's capital industrialization projects at Yanbu on the Red Sea coast and at Jubail on the Arabian Gulf will generate construction activity for the next twenty years at least. Nearly 100 contracts have already been awarded to more than fifty companies for the Jubail project alone.

A great many Saudi clients have for some time favored U.S. developed designs, and these preferences have helped consultants like CRS Design Associates of Houston, Texas, to achieve remarkable successes in some of the most prestigious projects on the peninsula. This firm was responsible for the design of the Saudi University of Petroleum at Dhahran, one of the best ex-

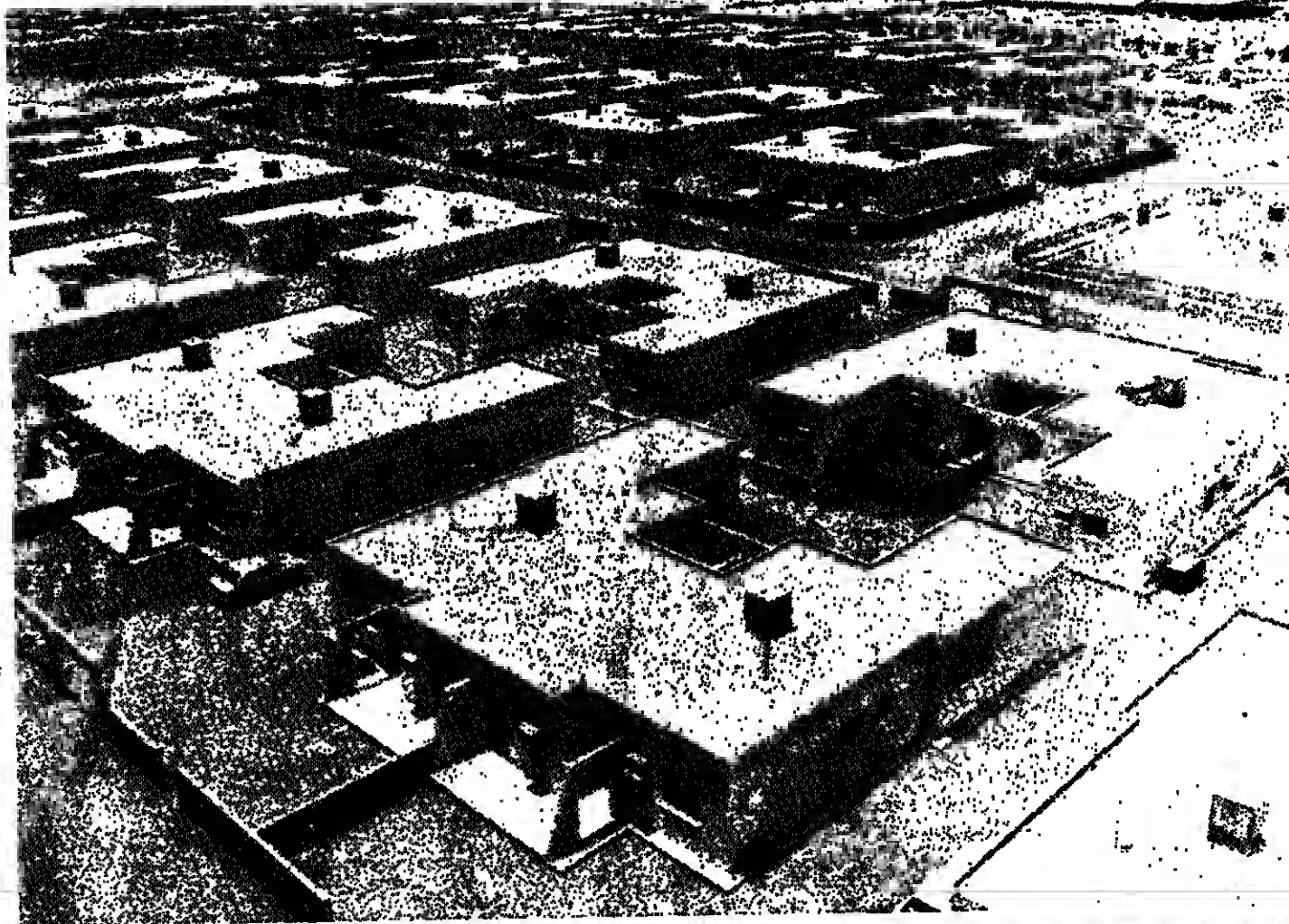
amples of new Middle East architecture. Now CRS is designing buildings valued at something like \$200 million.

The United States is still the leading supplier of materials and technology to the Saudi Arabian construction industry. The U.S. Corps of Engineers, for example, is currently responsible for projects valued at \$24 billion, including military programs with two major seaports. But competition is fierce, as recent contracts awarded indicate. They include construction of a television complex by a West German contractor (\$348 million), construction of sports villages by a West German contractor (\$83 million), construction of a sewerage project by a Saudi Arabian/West German consortium (\$225 million), hospital construction by an Italian contractor (\$265 million), housing by Korean companies (\$1.2 billion), desalination plants by Japanese firms (\$392 million), Jubail housing by a Jordanian/Saudi consortium (\$344.5 million) and telecommunication projects by British companies (\$415 million).

Bahrain causeway

Aside from the Bahrain government's housing program, which is likely to offer considerable opportunities for supplies of prefabricated systems, the island's importance for the construction industry will be strengthened by the development of the causeway to the mainland of Saudi Arabia. This could also give further impetus to Bahrain's prospects as a major service center for the region.

The government's legislation



last year, which allowed establishment of offshore companies without the local partnership requirement, created interest from the construction materials sector. The causeway itself will involve construction valued at something like \$1,000 million.

Significantly, although the boom in the domestic market is over, no fewer than 3,977 applications for a wide variety of construction projects were submitted to the municipality during the first six months of 1978. This indicates a continued confidence in the

island's future on which the causeway will have a major influence.

Kuwait

Kuwait is one of the most well organized and sophisticated of the rapidly developing Middle East states. Its current development allocations include

\$4,000 million for housing and \$1,000 million for motorway extensions. Port expansion will account for \$750 million; various recreation developments another \$400 million; and hospital construction \$200 million. According to the country's five-year plan, Kuwait's to-

tal project expenditure to 1980 will be in excess of \$17 billion.

Dramatic illustrations of the pace and growth of construction expenditure in major Middle East countries can be found in a comparison of approximate project expenditures on construction between 1973 and 1977. In 1973 total public and private sector expenditure in Saudi Arabia was \$4 billion. By 1977 it had risen to \$22 billion, and it is still rising.

Emerging North Yemen

North Yemen is now beginning to emerge as a sizeable and important market. The country has been experiencing a boom, particularly in housing, commercial development and land speculation.

Workers' remittances, largely from Saudi Arabia, are now in excess of \$1,000 million per year. The current development plan envisages investments valued at \$3,630 million to 1981. Something like 20 per cent of the proposed projects are likely to be financed from such countries as Saudi Arabia and Kuwait and from international funding institutions like the World Bank.

Sudan

On the other side of the Red Sea, Sudan's importance should never be underestimated. The current development plan to 1983 envisages big expenditure on basic infrastructural requirements. Some \$1,200 million has been allocated for communications development alone. And a new port is being built south of Port Sudan; more than \$200

million is to be spent on airports; and, over the next decade some \$300 million is to be spent on power projects. Huge irrigation schemes are also in the development program, funded largely by Arab aid.

Sudan's construction industry is expanding rapidly; the country is becoming a key area for international building and civil engineering contractors.

According to Winfred Richter, market analyst for "Middle East Construction" and managing director of Manteccon, acceleration of activity in Saudi Arabia during 1978/79 will generate new construction equipment sales approaching the \$1 billion mark. In fact, the Middle East will, over the next few years, absorb nearly 15 per cent of current annual world production of construction equipment (excluding the Eastern bloc). This estimate includes spare parts, but excludes used equipment.

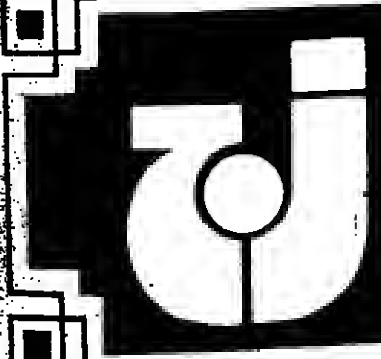
Big as the market in Saudi Arabia alone is, the huge potential of the total Middle East must properly be understood. As a recent survey published by "Middle East Economic Digest" points out, when calculating this potential the huge vast sums that the oil rich states of the Arabian peninsula are giving in aid to neighboring states must be included. This area, which takes in Sudan and Egypt, encompasses a very large population, capable of almost limitless development and of sustaining a construction boom well beyond the turn of the century.



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Yanbu: Magnet for construction industry

By Jim Landers

The Yanbu Industrial Complex, one of Saudi Arabia's two energy cities of the future, easily ranks among the world's bigger magnets for the construction trades. Between now and the middle of 1981, billions of dollars of work is planned that will involve as many as 18,000 construction workers.

While most work on Yanbu is still at the design stage, well over 40 firms are already involved in various building projects. (See list.) Roughly half are Saudi, while the rest come from a worldwide selection of companies.

The work involves both big jobs and little ones, from fence building to assembling refin-

eries, a petrochemical plant and an NGL processing center.

Thanks to guidelines set down by the Royal Commission for Jubail and Yanbu, the Red Sea industrial complex promises to be of particular interest to Saudi contractors. Giant building jobs are to be subdivided into smaller components to attract as many Saudi companies as possible.

In areas like housing, the scale of construction planned (14,000 units in five years' time) is likely to see a number of firms in the Kingdom heading north and west.

"Yanbu is a sizzling target" for Saudi companies, said one official involved in the complex.

Yanbu has already captured

several titles in the construction world — the largest jack-up pier, largest pipe-welding shop, largest floating desalination plant. But, as Yanbu begins to move toward the complex work of drawing together hundreds of building jobs, detail is as important as size.

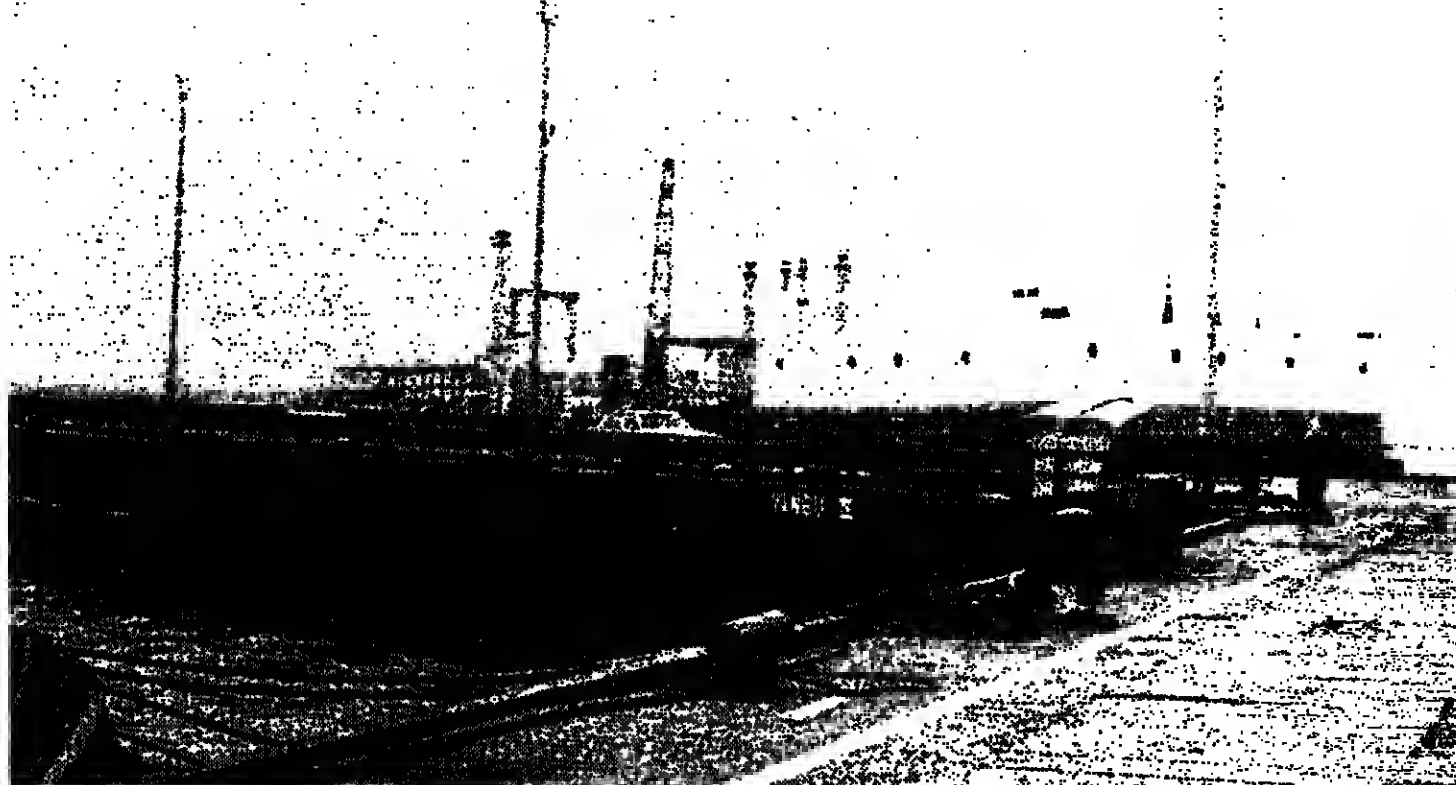
The master plan accepted by the Royal Commission for Yanbu and Jubail last year describes a hydrocarbon and metals industrial park built next to a new city of 150,000. Apart from the natural harbor among the coral reefs of the coast, the builders have had to bring everything in with them.

Even the old town of Yanbu, with its 21,000 residents, lies 13 kilometers north of the 183-square-kilometer industrial site.

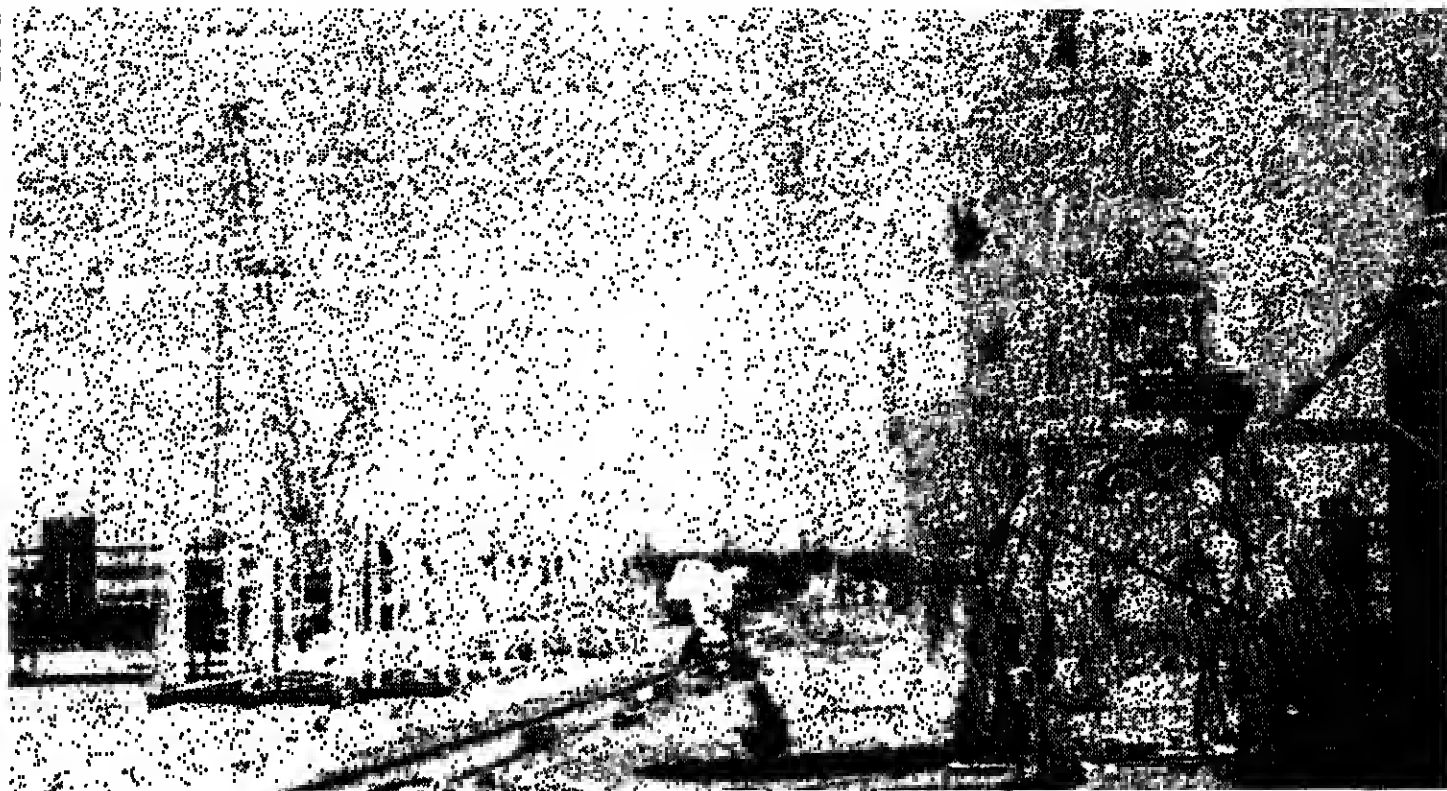
too far to be of immediate help with such basics of infrastructure as roads or electricity, phones or water supplies.

"Yanbu and Jubail will probably turn out to be the best two cities in the Kingdom," Planning Minister Hisham Nazer said last August, "because they are planned from scratch. We have taken into consideration every known and conceivable idea in city planning...I don't just mean that they will be major economic centers. Our estimate is that the quality of life—houses, telecommunications, schools—will be the best in the Kingdom."

Working under Nazer as director general of the Yanbu facility is Engineer Sammy Mosly, who handles the daily



Pioneer Port at Yanbu, completed last November



Workmen assembling foundations for Yanbu construction camps

executive responsibilities of building the infrastructure of Yanbu for the Royal Commission.

Saudi Arabian Parsons Ltd., a joint venture between Dr. Ghailth Pharaon's Research and Development Corporation (REDEC) and the Ralph M. Parsons Company of California, is management services contractor for the project.

Much of the work at Yanbu over the last two years has involved planning (including a master plan by Parsons). But the summer of 1978 witnessed the award of several major contracts the builders have been waiting for. The most recent ones involve design and engineering contracts that went to two firms who will begin the work on the Yanbu port and the power and desalination plants.

The heavy industries currently planned at Yanbu are primarily divided between Petro-

and Aramco acting as the major corporate interests. Together, these groups plan a 250,000 bpd refinery added later; a 170,000 bpd domestic refinery originally to be built in Jeddah but tentatively relocated to Yanbu; a 500,000 tons a year petrochemical plant; and an NGL processing center with two gas fractionators designed to feed the petrochemical plant and refineries with ethane feedstock as well as support a major NGL export center.

All of these industries will be made possible through the construction of two major pipelines linking Yanbu with the petroleum wealth of the Eastern Province. One will eventually carry as much as 235 million bpd of crude oil from Abqaiq, while the other will have a capacity for 300,000 to 400,000 bpd of NGL.

Construction of these two pipelines got underway this fall, setting in motion a number of other projects of an infrastruc-

ture nature at Yanbu.

When the first phase of construction is completed (current target: 1984), Yanbu will have in place the first two refineries, a world-scale petrochemical plant, the NGL center, and what amounts to four ports along with a city of 75,000 people. By Phase III, which will run into the mid-1990s, the first of Yanbu's ore-processing plants, may be in place, although these facilities are still in the discussion stage.

Hundreds of construction companies will eventually be involved in the building of Yanbu, along with a peak of 28,000 construction workers.

At the mouth of what will be the Yanbu industrial complex's cargo port, a large power and desalination facility is planned. Recently the Royal Commission awarded the design and engineering contract for this project to the Gibbs and Hill firm. The project will include eight 60-megawatt gas turbines

and four 120 megawatt steam turbine generators, providing a total of 960 megawatts of electricity for the Yanbu complex.

The facility will also include five desalination units, one capable of handling 380 cubic meters of seawater per hour and four others capable of treating 1,000 cubic meters per hour. In all, there will be four desalination plants with a total capacity of 105,000 cubic meters a day.

Construction of the power and desalination facilities is scheduled to begin next year and be completed in 1984.

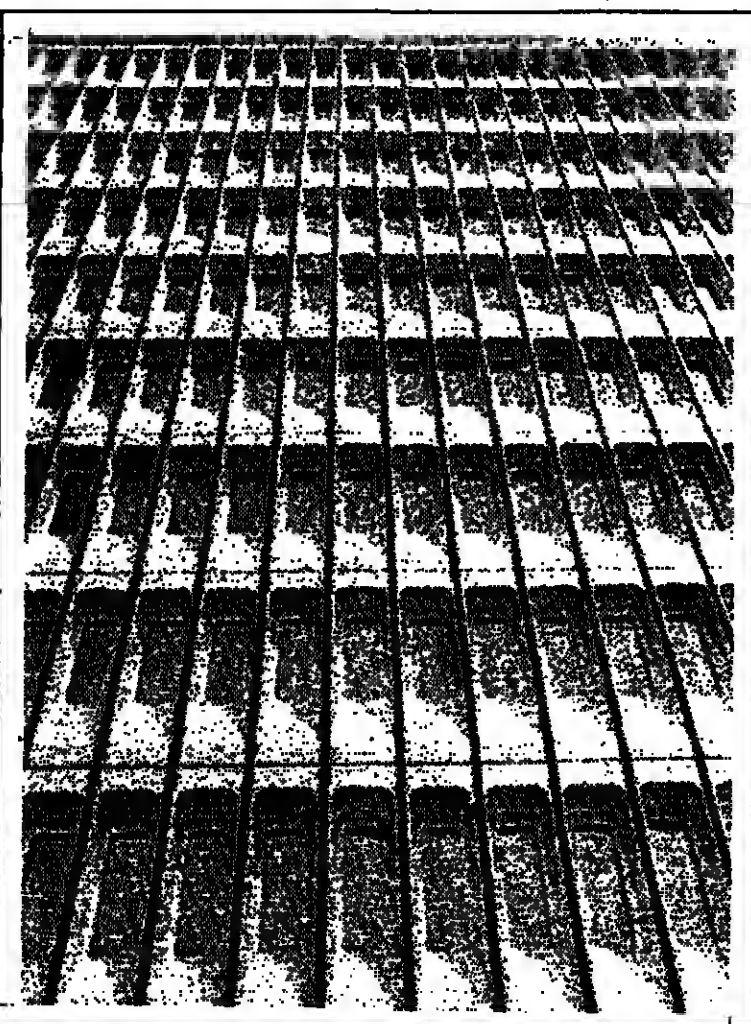
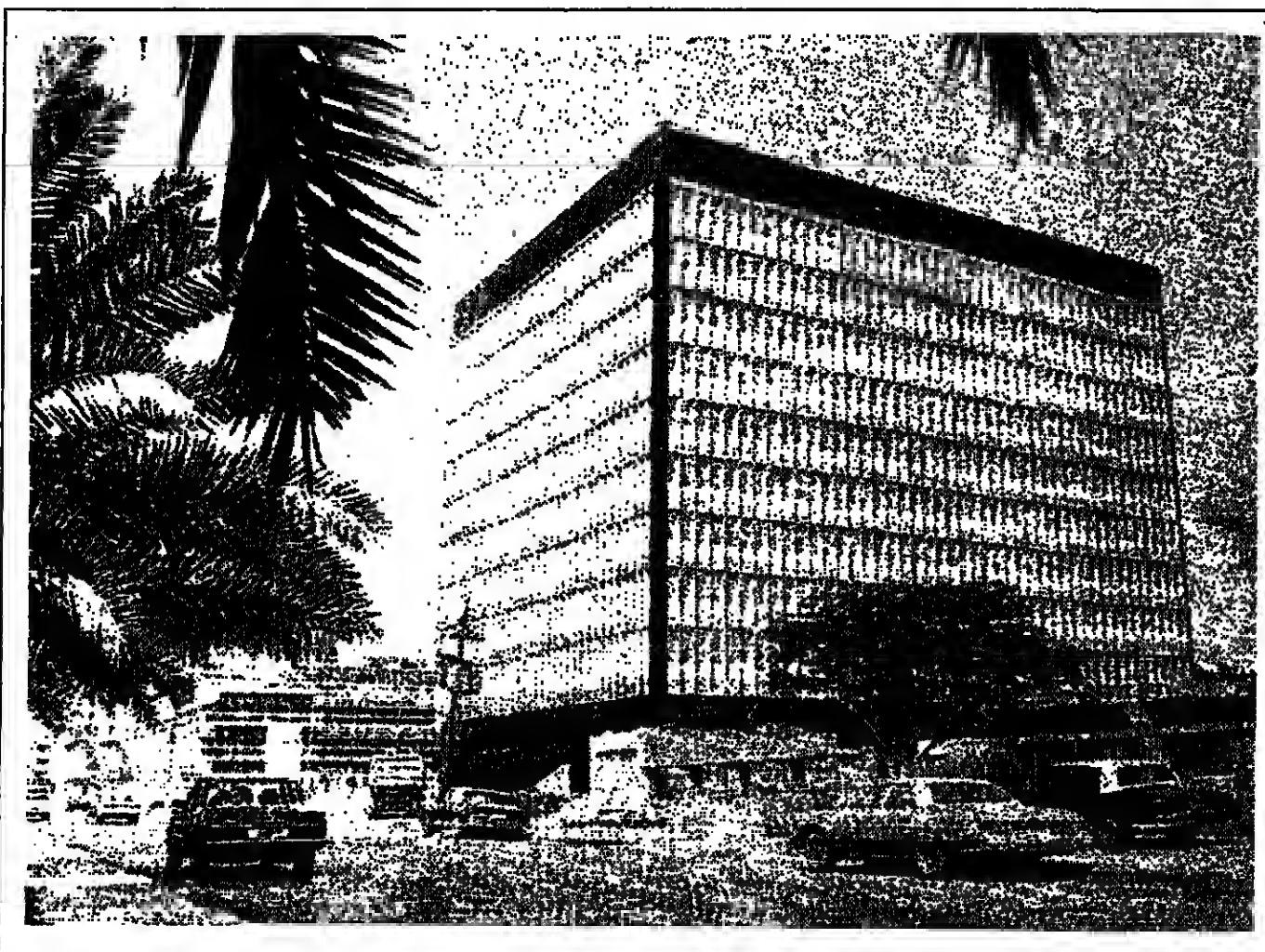
The desalination and power plants will eventually take over for some temporary workhorses: a 500,000 gallons a day floating desalination plant, and a group of three gas turbine generators being installed at the major construction camp capable of generating 48 megawatts of power.

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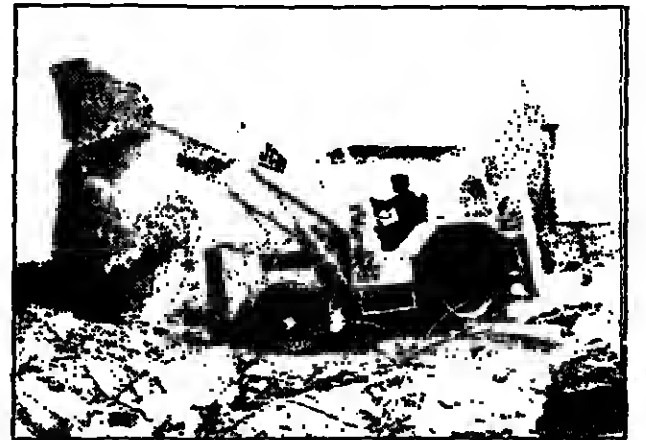
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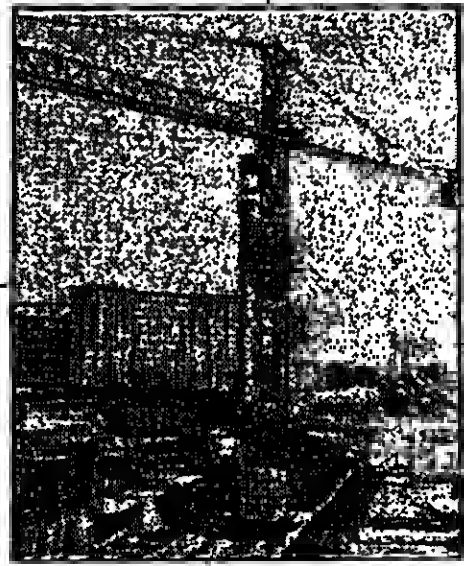
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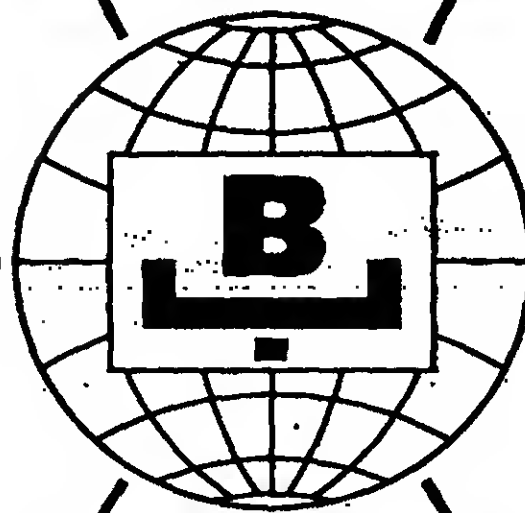
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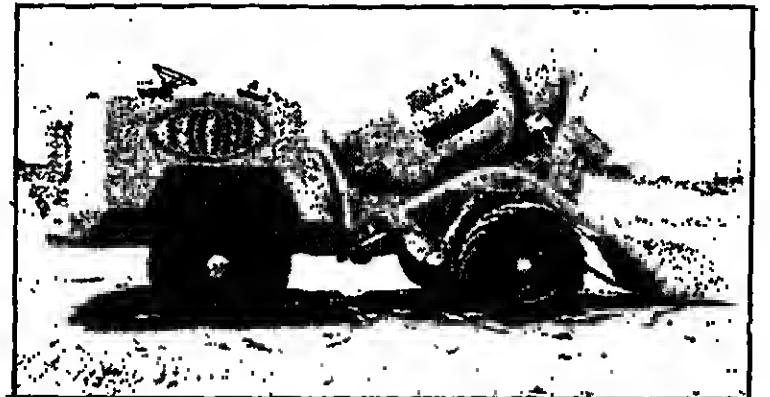
EXCAVATORS LOADERS
BACKHOE LOADERS



TOWER CRANES SELF ERECTING



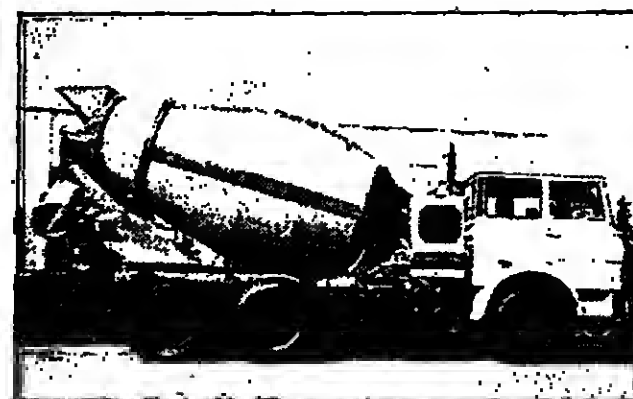
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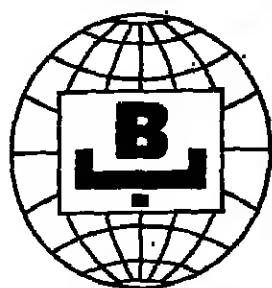
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in earlier this year from Sasakura Engineering Co. Ltd. of Japan. It was in place quickly enough to replace two of four wells dug in Wadi Al Farrah by the Muhammad Ali Charidi Est., which were turned over to the town of Yabou for its use.

Frederic R. Harris, Inc., a subsidiary of Planning Research Corporation of Washington, D.C., was recently awarded a \$10 million contract for design and engineering of the Yanbu port. There will be about eight berths for general cargo at the port by 1984 designed to handle vessels ranging up to 100,000 deadweight tons in size.

Initially, the port will serve as an import facility to handle the huge amount of construction materials that will come in to Yanbu.

At later stages, the port will be handling a variety of cargoes—containers, bulk solids, Ro-Ro shipments and liquid products. Most exports will be coming from Yanbu's petrochemical plant and refineries.

Two other export facilities are called for and should enter into the construction phase in the near future. These are terminals for crude oil and NGL, which will service VLCC ships bound primarily for European markets. Saudi Arabia currently sends 38.5 per cent of its oil exports to Europe, and Yanbu's exports will make use of an expanded Suez Canal project now underway and Egypt's new Sumed oil pipeline running just west of the canal.

To get these terminals and the port in shape will require dredgers, concrete construction companies, pipeline assemblers and a host of other builders.

Last November, the first requirement for a construction project of the size envisaged for Yanbu was completed when Ipco Marine Ltd. turned over the jack-up steel barge pier, dubbed Pioneer Port.

The port was assembled from three barge structures made in the Far East and towed 4,500 miles across the Indian Ocean to Yanbu. It was not an easy task, since two of the barges were involved in severe gales on the way. (One broke loose

from its tow line briefly off the coast of Somalia, but was recovered undamaged.)

Pioneer Port was built to handle two 72,000 deadweight ton ships simultaneously—the carriers for more than 500,000 tons of steel pipe delivered to Yanbu from Japan, Italy and France.

Plans call for the construction of a beachhead next to the Pioneer Port to handle the offloading of the huge cracking towers and other modules needed for the hydrocarbon industrial plants.

The work planned is also having an effect on the port facilities in the old town of Yanbu, where construction is underway to widen the old channel to 200 meters and build seven additional berths. A vast concrete storage facility and warehouse complex are well underway at the old Yanbu, and the majority of the new facilities should be ready by next year.

The pipelines are the contracts set to trigger the immediate construction timetables at Yanbu. Last June, Petromin awarded about \$400 million in construction contracts for the Abqaiq-Yanbu Crude Oil Pipeline, and Aramco followed suit during August by awarding a \$100 million contract for construction of the East-West NGL pipeline.

Both pipelines will run about 1,200 kilometers across the width of Saudi Arabia, and will be buried. The current timetable calls for both lines to be completed early in 1981.

Getting the pipe ready for construction is a major job in itself. The Al Qatani Shaw Leonard Co. has put together the world's biggest pipe-welding factory at Yanbu, where 40-foot lengths of the pipe are welded into 80-foot sections and baked with 50 micrograms of epoxy.

From Yanbu to a midpoint in the central Arabian Peninsula, an American-Lebanese consortium is building the crude oil line, Sedco (Southeastern Engineering and Drilling Company) of Houston and CAT are handling the job. From Pump Station 8, (where the two hal-



A multi-stage flash distillation unit aboard Yanbu's floating desalination barge

ves will meet) to the Abqaiq oil facilities in the Eastern Province, the Italiao firm Sapiem is handling construction.

United Technologies Corp. and Bingham-Willamett, two American firms, are providing the 33 gas turbines and pumps for the crude oil line.

The NGL line, from Yanbu to the Sheddum NGL processing center, is being built by Techint Arabia Ltd., an Argentine-Saudi joint venture based in Dammam.

By the time the pipelines are finished, Yanbu will have an NGL processing center with two gas fractionators. That

project alone will involve an estimated 5,000 construction workers. The domestic oil refinery could involve an equally big manpower commitment, and it too is scheduled to be in place by 1981.

Along with these two big projects, another 500 workers will be needed for building Petromin's crude oil terminal.

The crude oil terminal and NGL center will require a tank farm storage area at Yanbu. From 10 million to 12 million barrels of crude oil will be stored at the industrial complex, and the pipeline itself will hold 8.5 million barrels.

Three 600,000-barrel floating roof storage tanks are planned for holding natural gasoline, with another seven 600,000-barrel insulated, dome roof tanks for propane and butane. These nine tanks will handle storage for the NGL center.

Quite a number of other contracts are still up for grabs involving these big facilities, since the basic infrastructure of the industrial complex will have to be in place in order to deal with their use.

As it shapes up now, construction work should take off late next year and peak in the middle of 1981 as these big fa-

cilities come onstream. Between 1981 and 1984, the end of the first phase of Yanbu's development, the petrochemical plant and export refinery will come in, involving more thousands of workers.

While these big projects are underway, the Royal Commission is anticipating an influx of Saudi support industries at Yanbu. A tremendous demand for construction materials will be part of the magnet. So will the vast numbers of people coming to Yanbu to build and work.

Yanbu will need an airport capable of handling 154,000

passengers a year, with both passenger and cargo terminals, a 3,000 meter runway and access roads.

The Royal Commission is encouraging a variety of industries to locate at the industrial complex that will primarily serve the domestic economy. Among these industries are food processing, textiles and apparel, leather goods, plastics, clay products, metalwork and printing facilities. These sorts of industries will be able to take advantage of the infrastructure under construction at the industrial park, which is by no means limited to the servicing of heavy in-

dustry.

After 1984, Phase II begins, which is primarily an expansion phase for existing types of facilities. A second, 250,000 bpd refinery would lead the way, along with a third desalination plant at the NGL center, bringing its capacity to over 400,000 bpd. The master plan looks for a sulfuric master plan during this phase as well.

Phase III starts in 1994, which is a little too far down the road for concrete plans at the moment. If geological surveys to the Arabian Shield turn out to be promising it is likely that Yanbu will then become an ore-processing center for the Western Province.

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- Tarbela Dam in Pakistan (J.V.).
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- Yanbu/Medina Water Pipe Line, in progress — Length 250 km (J.V.).
- Four nuclear plants, in progress.

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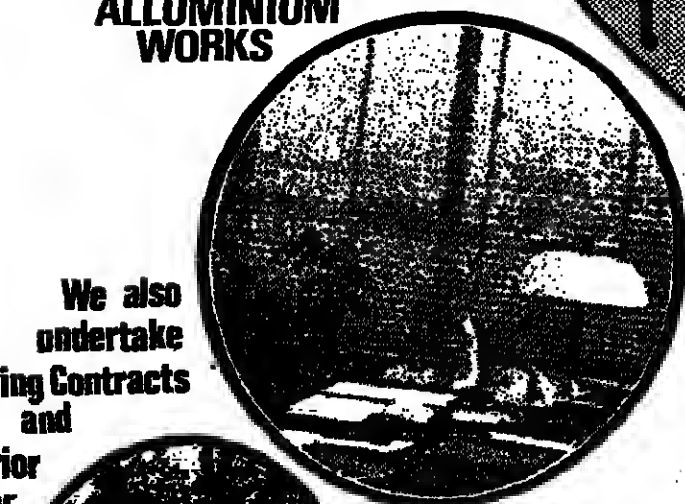
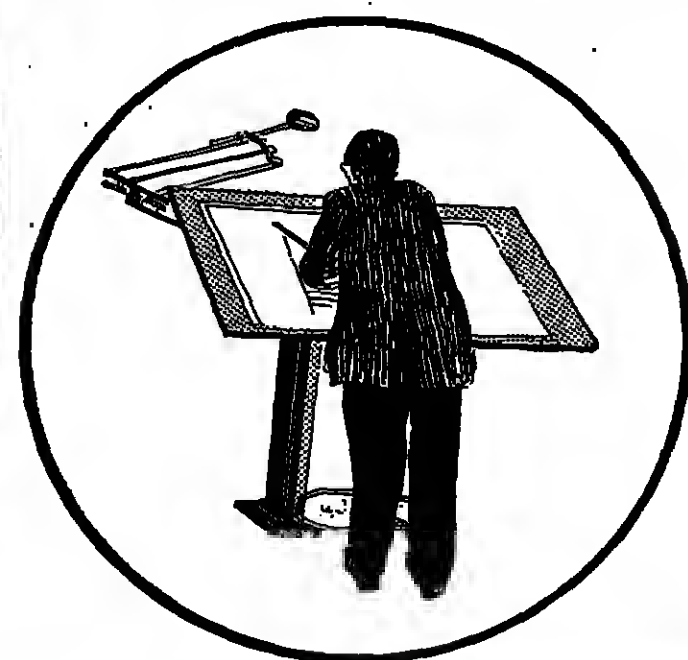
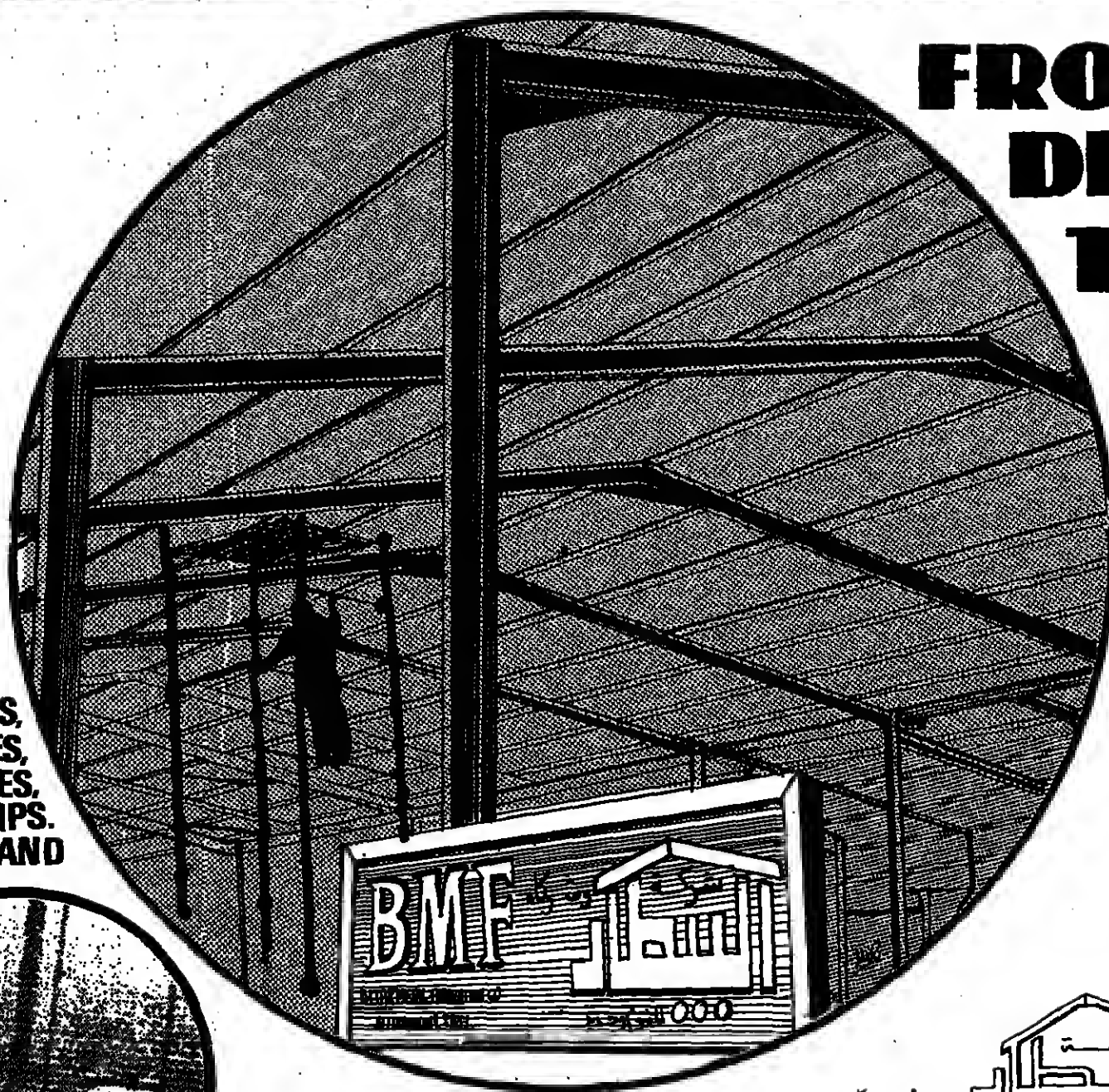
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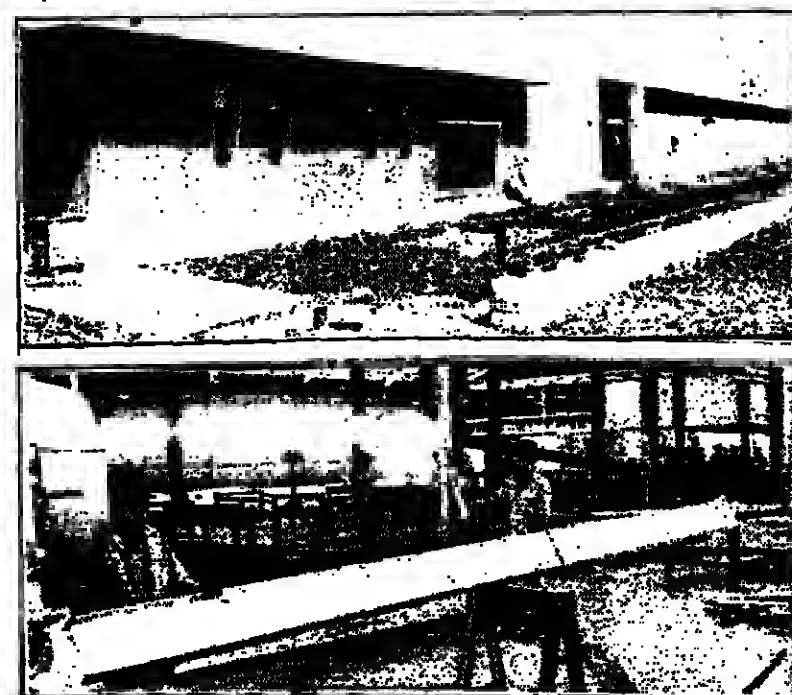


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Jubail: The world's biggest construction job

By Mary Jo McConahay
Jubail has been described as the biggest construction job in the world—ever. Superlatives are slippery, and often leave us with a ho-hum reaction; yet a visit to the earth-moving and map construction operation.

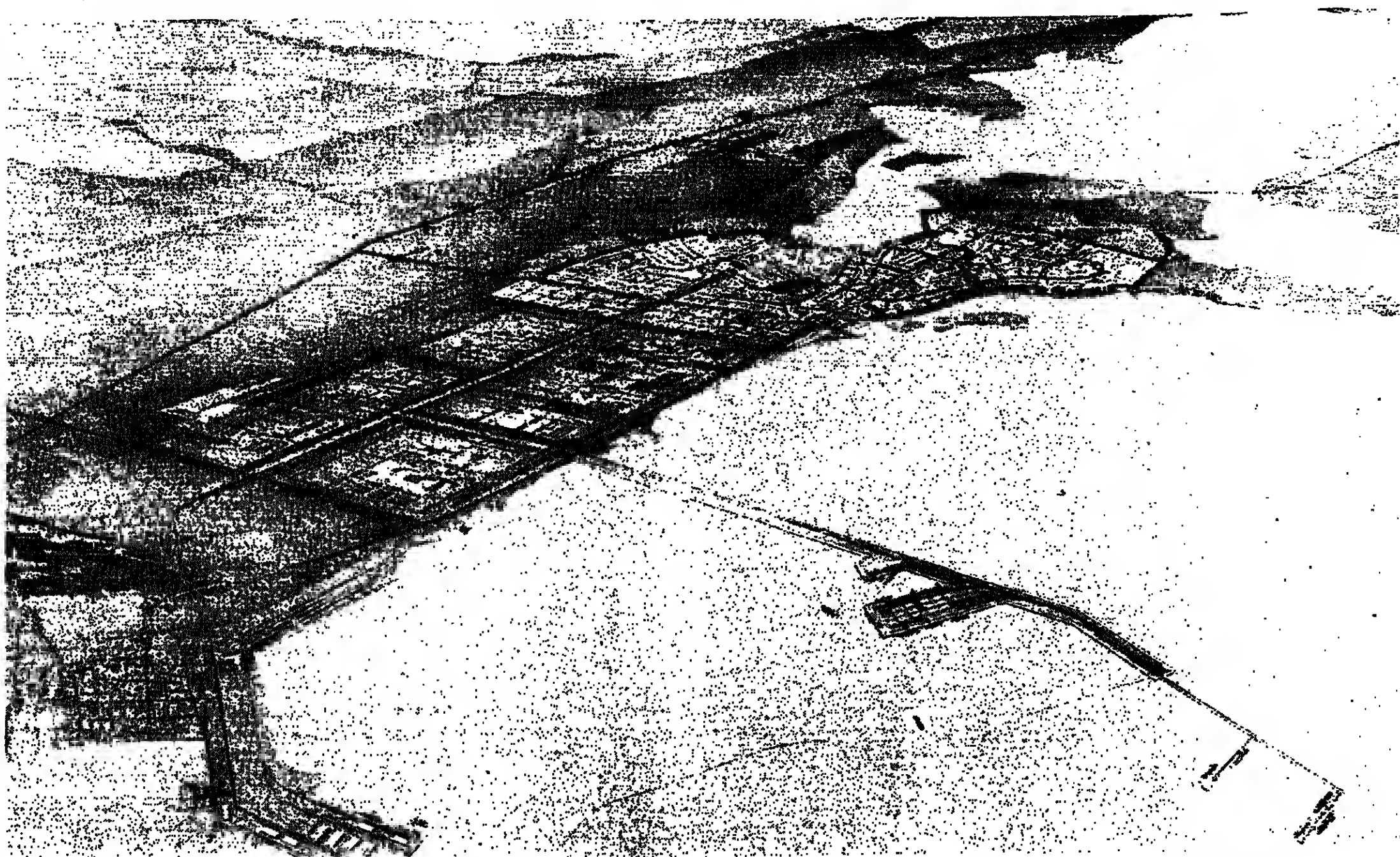
On the location of future petrochemical plants and a look at the Jubail project blueprint staggers the most jaded observer.

One hundred kilometers north of Dammam, the once tiny fishing village was chosen because of its location near the kingdom's oil fields, and its proximity to deep water. Here the government will set about diversifying its hydrocarbon resources with refineries, methanol, fertilizer and petrochemical plants, using the gas associated with oil to fuel energy-intensive industries like steel and aluminium works and will eventually build the secondary industries which will use their products. Also, stage by stage, it will develop the community which will grow around the center—a population expected to reach 400,000 by the mid-1990's.

Today the site of these future plants is covered with a horde of high-powered, groaning machinery: bulldozers, scrapers, haulers, all engaged in clearing, digging and smoothing the 95 million cubic meters of sand which must be moved to prepare the industrial site alone. They are paving the way not only for plants and factories, but for 290 kilometers of roads, including bridges and overpasses, and forty kilometers of railroad within the complex.

The earthmoving job is not easy: the site is predominantly sabkha, the dried salt marsh terrain which is tricky and sometimes treacherous. In places the surface supports fully-loaded Mercedes trucks, while a few inches away an object might break through the paper-thin crust and sink several meters before hitting a solid base. To get water to compact the earth, machines can literally scratch the surface and dig out the pools they need. In other parts, the sand is powder fine, and a grainy mist always surrounds the moving machines.

Many of the earth-movers are from Saudi companies, an



indication of the Royal Commission for Jubail's Saudiization policy for construction projects.

Besides being charged with building the Jubail community, the Commission is responsible for providing the infrastructure for the industrial area as well. The plants themselves, of course, will be built later by companies in partnership with SABIC and PetroMin; but the Commission must supply their water, electricity,

sewage systems, and provide for the army of construction workers—12,000 one year from now and a peak of 40,000 in the mid-eighties.

The Commission is increasingly attempting to assign contracts to Saudi companies, even if it means breaking down big contracts into elements which can be handled by smaller local operations.

"We could have one big international firm come in and take over all aspects of the

workers' camps, for instance," says one young engineer on the Commission. "And maybe this would be faster and even more efficient in the short run. But unless Saudi's develop the capabilities to carry on industrialization themselves, this project has failed."

In the first eight months of this year, companies which were 90-100 per cent Saudi-owned received over SR176 million in contracts for work in the construction phase of

the Jubail project.

The policy certainly makes Saudi contractors happy, but Commission members emphasize that standard are never lowered simply to accommodate local firms. In fact, planners say they are quite pleased with the high quality of workmanship and with the on-time status of most contractors. They also feel there is a logistics advantage resting with local companies. Camps 1, 2, and 3, for instance, which were

each built for 2,000 workers, contain pre-fabricated living units which had to be shipped by ATCO Industries from Canada. Camps 4 and 5, on the other hand, to hold 3,000 workers each, have been contracted to the local Khorafy Establishment and officials say there is less problem with materials delivery this time around. The trailer units for Camps 4 and 5 are manufactured in Al-Khobar, only one and a half hours away. In an

other case, the Al-Mabani Company, doing site preparation, is one month ahead of a schedule followed by a Korean firm on a similar job at Jubail earlier in the earthmoving phase.

Materials supply to Jubail is easier in general now—not only because there are more local companies involved and a smoother overall operation that comes with sheer experience with the project—but also because Jubail's own com-

mercial port is ready for service. The first ship docked at the commercial harbor last spring, laden with living units. But officials say far too many suppliers are still going to Dammam with their Jubail material, either through ignorance about the commercial harbor here, or because brokers have a split shipment and choose to go to familiar, although more crowded Dammam. Jubail planners privately are considering ways to encourage shipments meant for Jubail to start coming into the harbor here immediately, as highway traffic between the two coastal cities is very heavy and the 95-kilometer railroad planned for the route is not likely to be in service for three years.

Just north of the primary industrial park, another responsibility of the Royal Commission. Here individual entrepreneurs are setting up what is needed to support the mammoth construction job: concrete plants, industrial gases, food supply, steel fabrication, equipment repair shops, etc.

These will lease land from the Royal Commission, which in turn will supply them with utilities. While the support industries themselves are in the hands of private businessmen, the commission monitors quality, since all the products are going into its own project. In addition, there will be environmental controls to make sure, for instance, that a "dirty" industry is not erected next to a food processing plant.

Big contracts coming up at Jubail are the operations and maintenance for construction Camps 4 and 5, and the Jubail Airport, a contract which will probably be awarded in November. The airport will be built in two stages: by mid-1979 it is scheduled to be ready for corporate jet aircraft and large cargo carriers such as the C-130. By mid-1981, it is expected the airport will meet international standards for commercial passenger aircraft. For many, that date will mean the end of the often grueling hour and a half ride over a bumpy road up the coast from Dhahran International Airport.

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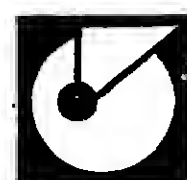
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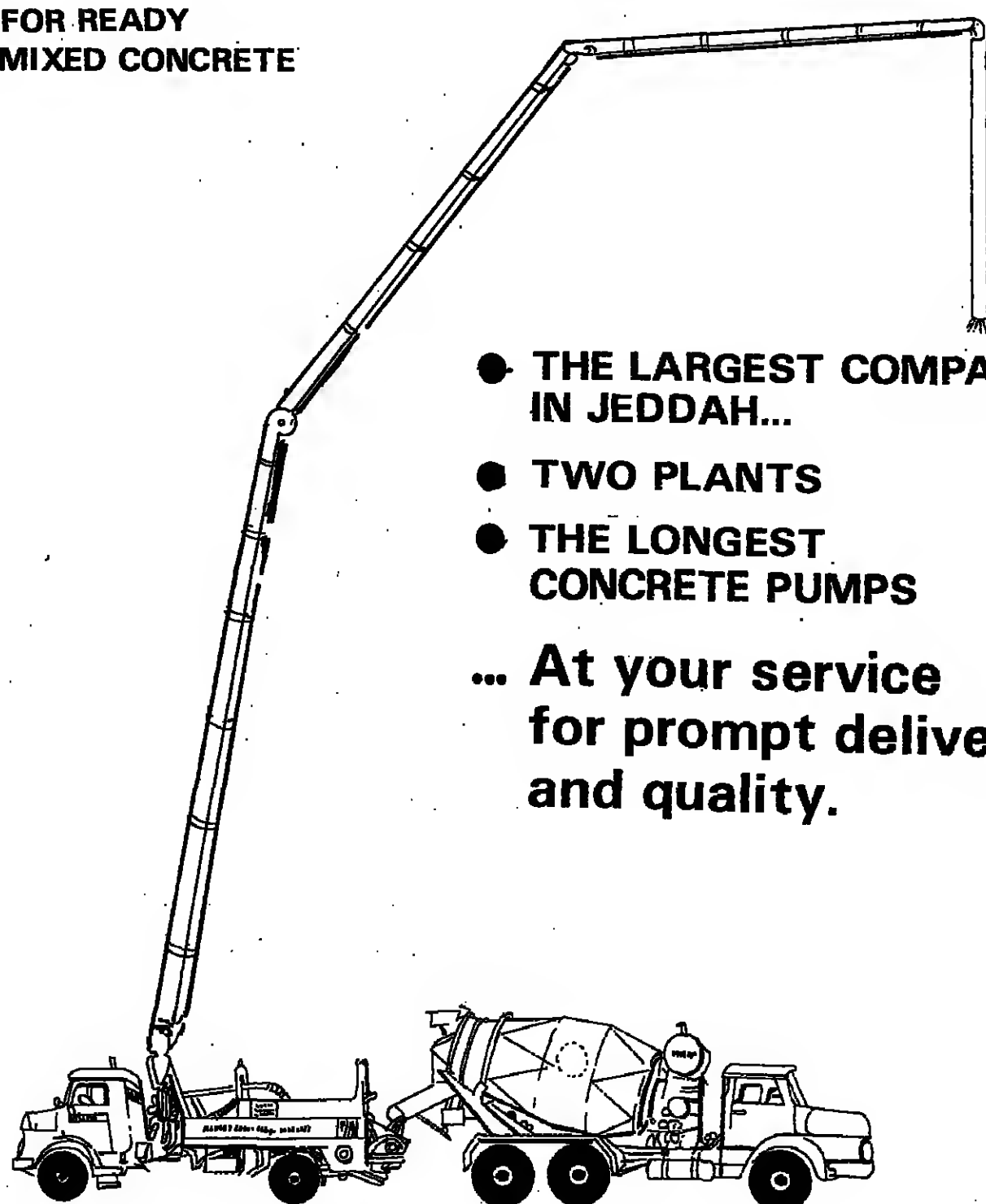


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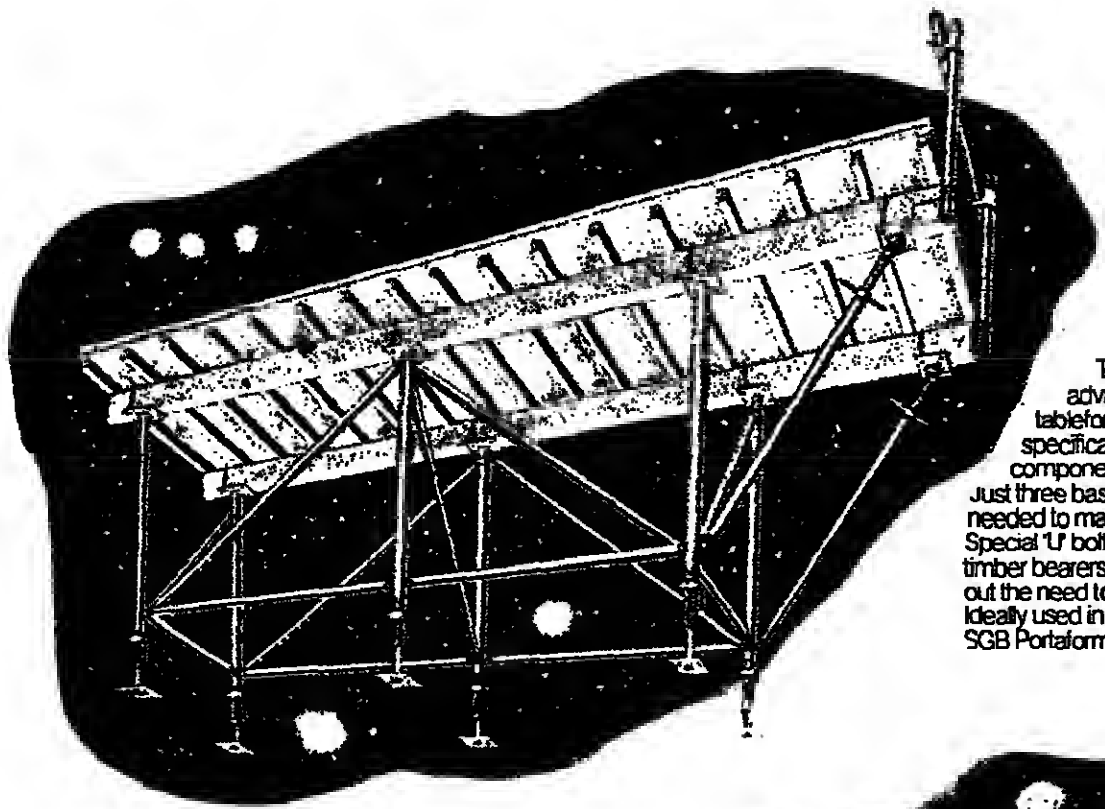
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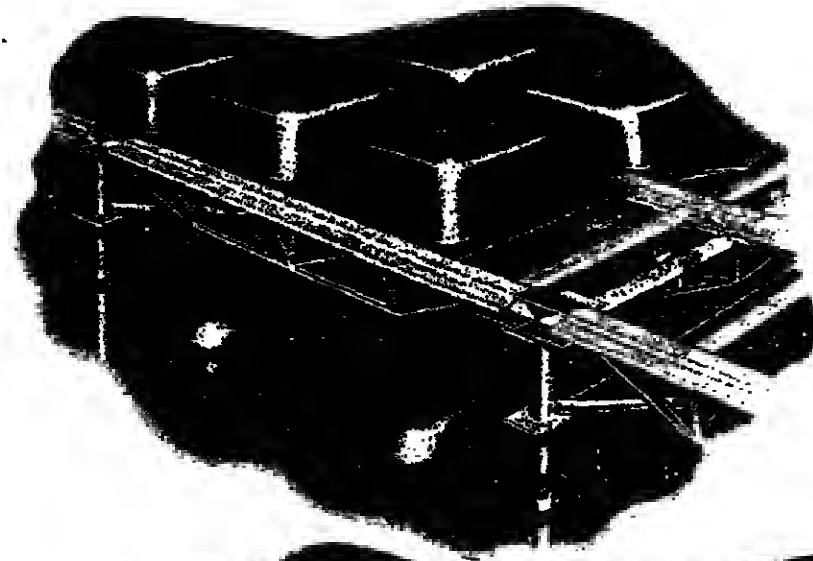
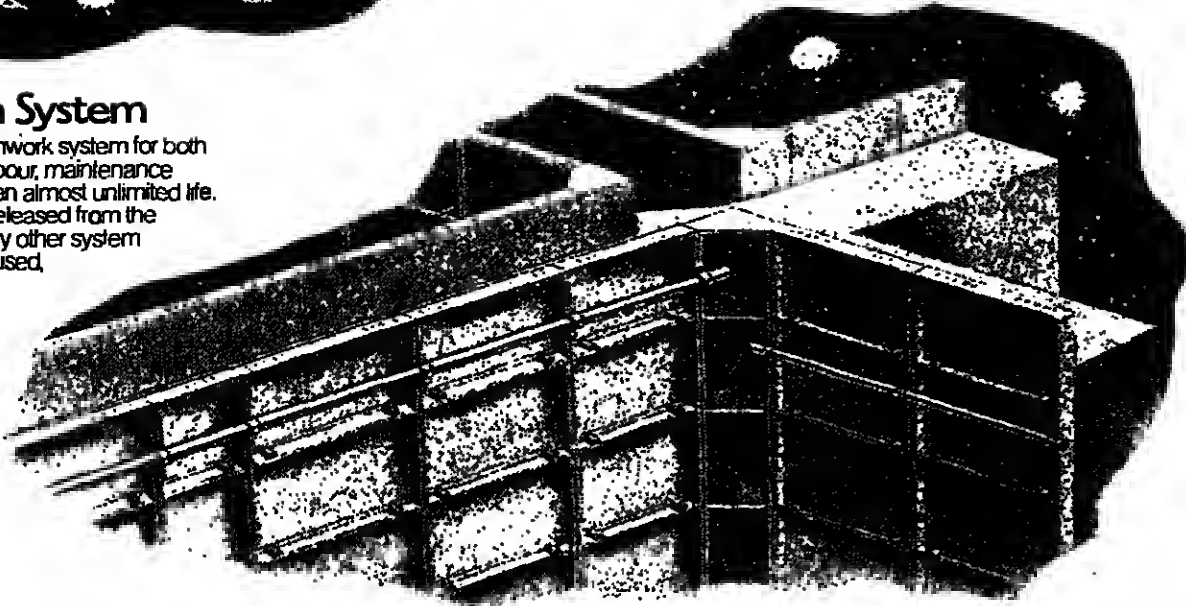


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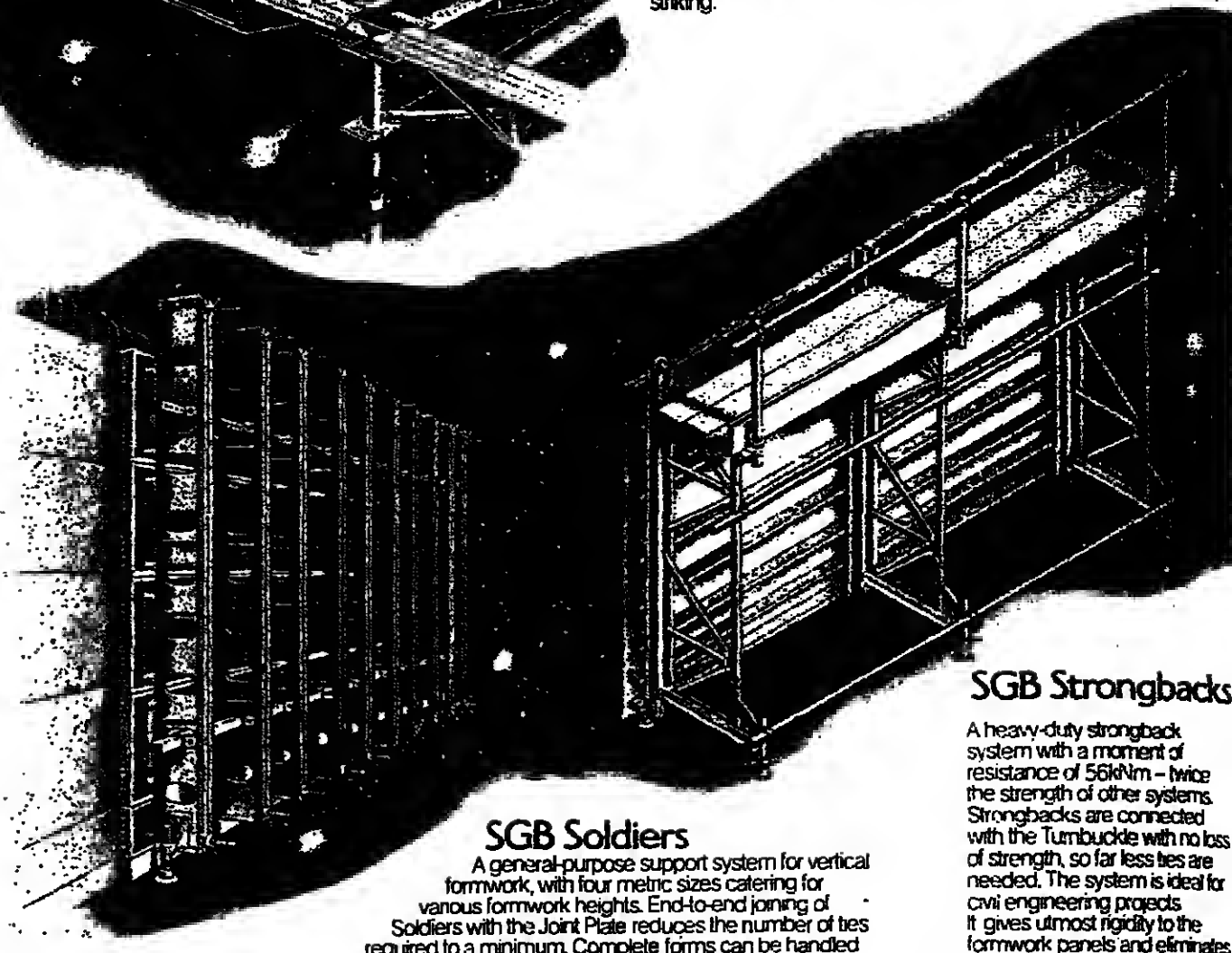
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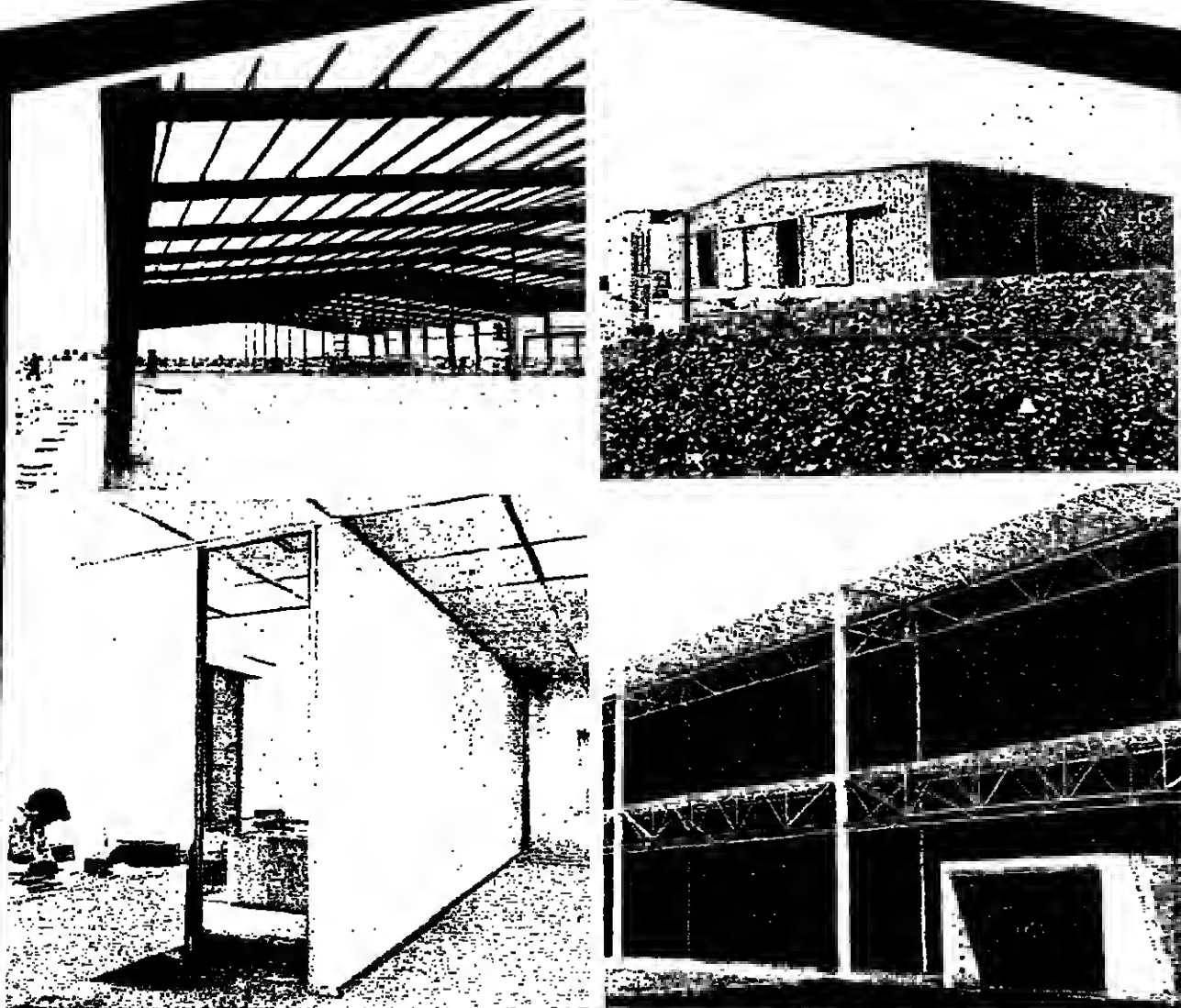
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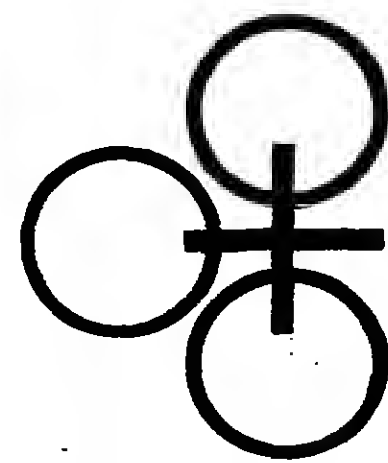
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هذه من الصور

Jubail port construction on schedule

By Barry Reynolds

If port construction progress is a barometer of efficiency in other sectors of the massive \$9 billion Jubail Industrial Complex, the future bodes well.

With nearly 10,000 personnel involved in various facets of port development, new berths are becoming operational.

3 harbors

Design and supervision of the three-harbor Jubail port, administered by the Saudi Arabian Ports Authority under Dr. Faysal Badr, are being carried out by Sir William Halcrow and Partners.

Actual subcontracted dredging and reclamation of the commercial harbor now finished — was handled by Adrian Volker Company. Dredging and reclamation for the industrial harbor were handled by the Jubail Harbor Consortium. Actual construction for the first phase of the harbor works was undertaken by Archirodon Construction.

The industrial and commercial harbors are being constructed simultaneously, and separately. Each has its own independent road and sea access.

Their functions are also distinct. The chief function of the industrial harbor will be the importation of bulk materials for the industrial complex proper. It will also handle the export of solid and liquid products from that complex.

The commercial harbor will serve as Jubail's general cargo emporium. It will also handle the export of by-products from secondary industries in the area.

Adjacent to the commercial harbor a small fishing port has been constructed. Future plans for this port call for the construction of warehouses, quays, nearby beaching facilities and an enclosed and covered wholesale seafood market.

By the time Jubail's petrochemical and secondary industries are operational, the entire port complex is expected to handle 5.3 million tons of cargo annually. — (BR)

at the rate of two a month. Three new berths, dredged to 14 meters and 12 meters are fully operational, bringing to five the number of general cargo berths now available. In addition, two container cargo berths, three terminal warehouses and a fleet of heavy-duty lifting cranes have been installed at the commercial harbor.

Jubail's Port Director General Hamad Saleh Al-Hawas is pleased with the progress thus far. He stated: "By any standards Jubail's commercial and industrial harbors will be competitive. By the time the petrochemical and secondary industries are operating, the Jubail port will be equipped to handle 5.3 million tons of cargo annually."

In addition to the secondary goal of relieving some of the Damman port's traffic, Jubail's separate commercial and industrial harbors will serve two main functions: They will provide facilities for the import of raw materials needed for the industrial complex. And they will provide the facilities and manpower capable of handling the export of solid and liquid products.

The commercial and industrial harbors are distinct in location as well as in function. The commercial port, located to the town's north, will handle general cargo and by-products from secondary industries. The industrial harbor, situated on reclaimed land, will cater largely to the industrial complex itself. An inter-port road, now pulsing with heavy construction traffic, connects the two and is expected eventually to shuttle cargo between them.

Dredging of both the commercial and industrial harbors is now complete and navigational buoys have been installed. Although Jubail was chosen primarily for its nine kilometer proximity to deep water, harbor basins and channels had to be dredged to a depth of 14 meters below low water level. A Dutch Dredging company, at the time employed over 700 full-time staff in its operations. The dredged sand was pumped via pipelines and deposited within constructed basins to form reclaimed ground. The old Jubail fishing harbor, once the departure point for a fishing population

that comprised 90 per cent of the town's inhabitants, has now been reclaimed. A new harbor for the diminished fishing fleet was constructed adjacent to the new commercial harbor. In the next 15 years, when the various industries are operational, a resident population of 300-400,000 is expected to settle here.

Despite the vast changes, however, the government seems as intent upon preserving Jubail's ancient charm and salvaging part of its former livelihood as it is in developing the Kingdom's largest industrial center. Besides the new fishing harbor with independent land and sea access, quays, a covered wholesale market and beaching facilities will be provided.

Muthanna Al-Kurtass, Marine Manager and longtime Jubail resident, hopes that the new fishing harbor will reinterest former fishermen. He said that many of the fishermen, after being paid handsome prices by the government for valuable land tracts, left the sea. Many now own the shops in town that cater to the proliferating labor

population. "But their hearts are still with the sea," he adds. Al-Kurtass praised the government for its concern and said: "With their newly-acquired capital and business expertise, the men won't be the fishermen of old, but many of them would like to buy a few boats and get back into the business. A maritime market is there just waiting for the organization."

Jubail is only one site on the once exclusively sea-dependent East coast where the government is seeking to preserve a part of the fishing economy. Fishing quays and wholesale market facilities are also planned for Al-Khobar, Tarut Island and Qatif.

Whatever the fortunes of Jubail's fishing industry, it is certain to be dwarfed by the port's industrial activity. Protected by breakwaters, the harbors are being enclosed by 40,000,000 square meters of water. The container area alone comprises 10,000 square meters of storage space. Maintenance facilities, control towers, separate police and fire departments, dock labor offices, customs buildings, a mosque, res-

taurants and even a training school for marine personnel are rapidly transforming this placid fishing village into Saudi Arabia's industrial hub.

The industrial harbor itself is rapidly taking shape. Nine deep water berths of 14 meters will be able to handle ships of 60,000 tons. Some of the

600-meter wide quays of reclaimed land are visible from the town when the dust clouds from eodiously-pounding lorries clear away.

A surveyed sea channel, patrolled at all hours, will regulate marine traffic. The navigational guidance system is now opera-

tional. When asked whether the port authority was worried about the danger of future oil spills, Hawas replied: "The Ports Authority under Dr. Faysal Badr, is cooperating closely with environmental protection groups in this matter. We have patrol boats constantly on duty as well as detergent-

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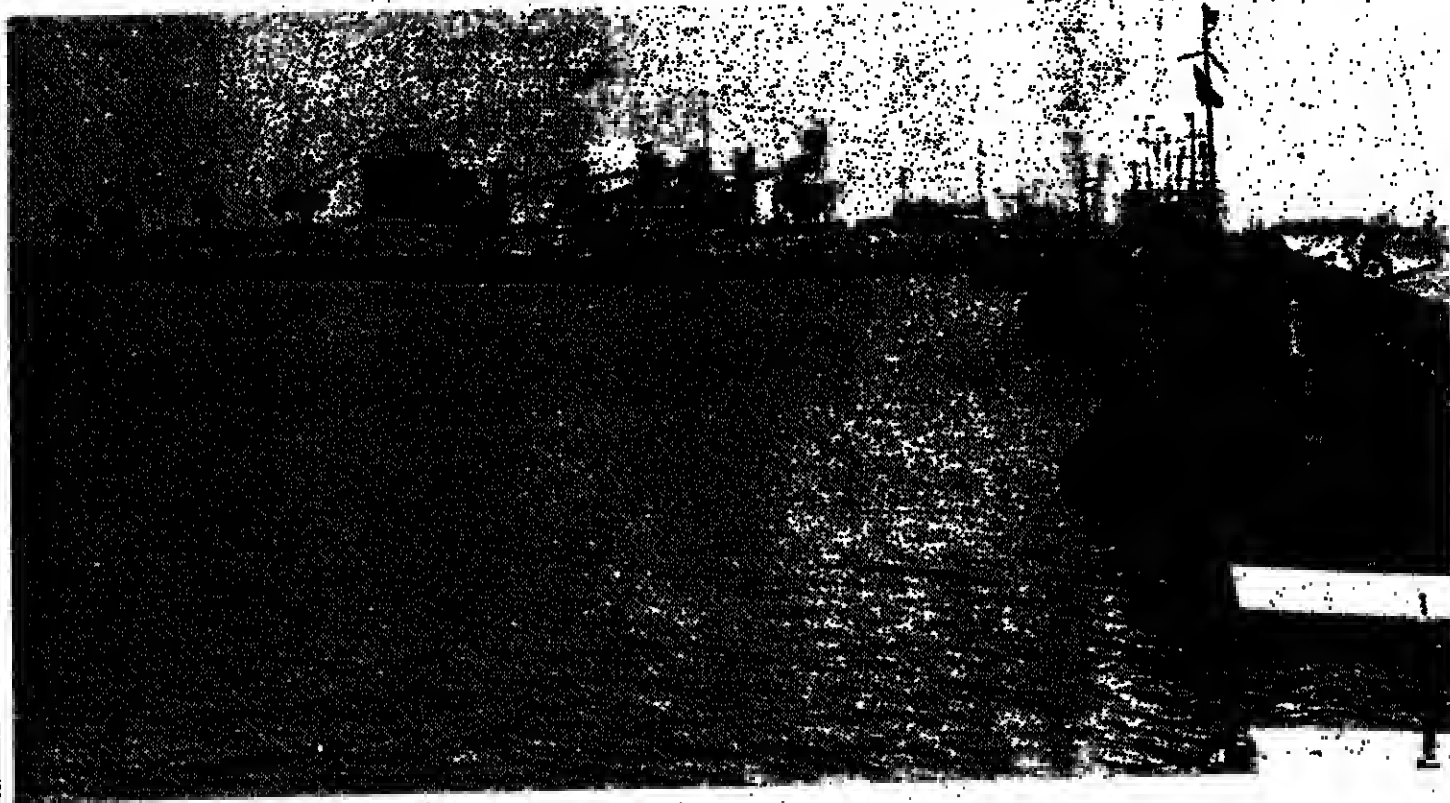
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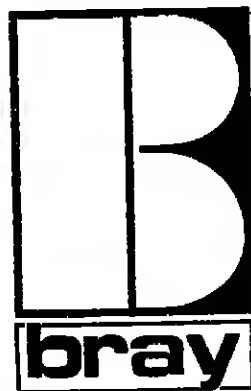
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Jubail Commercial Harbor with general cargo berths and two container berths now completed.

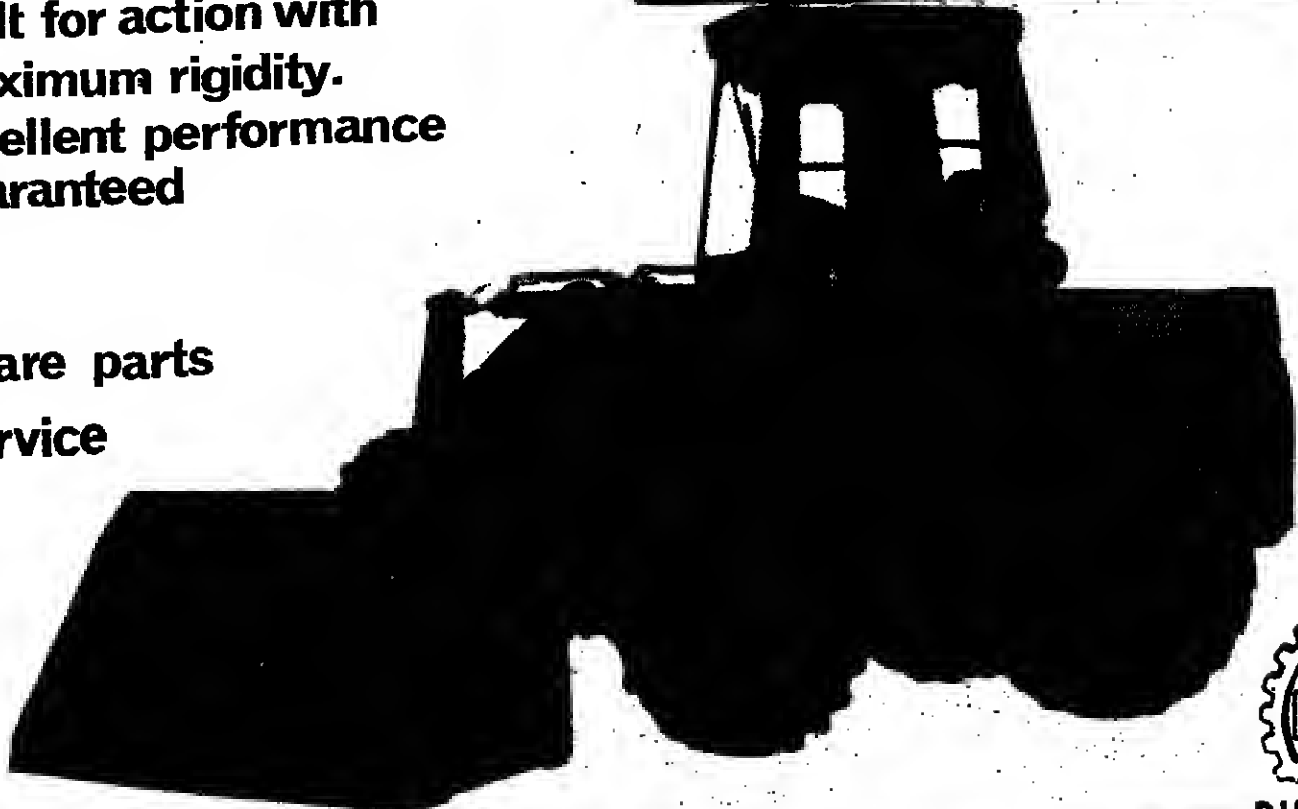
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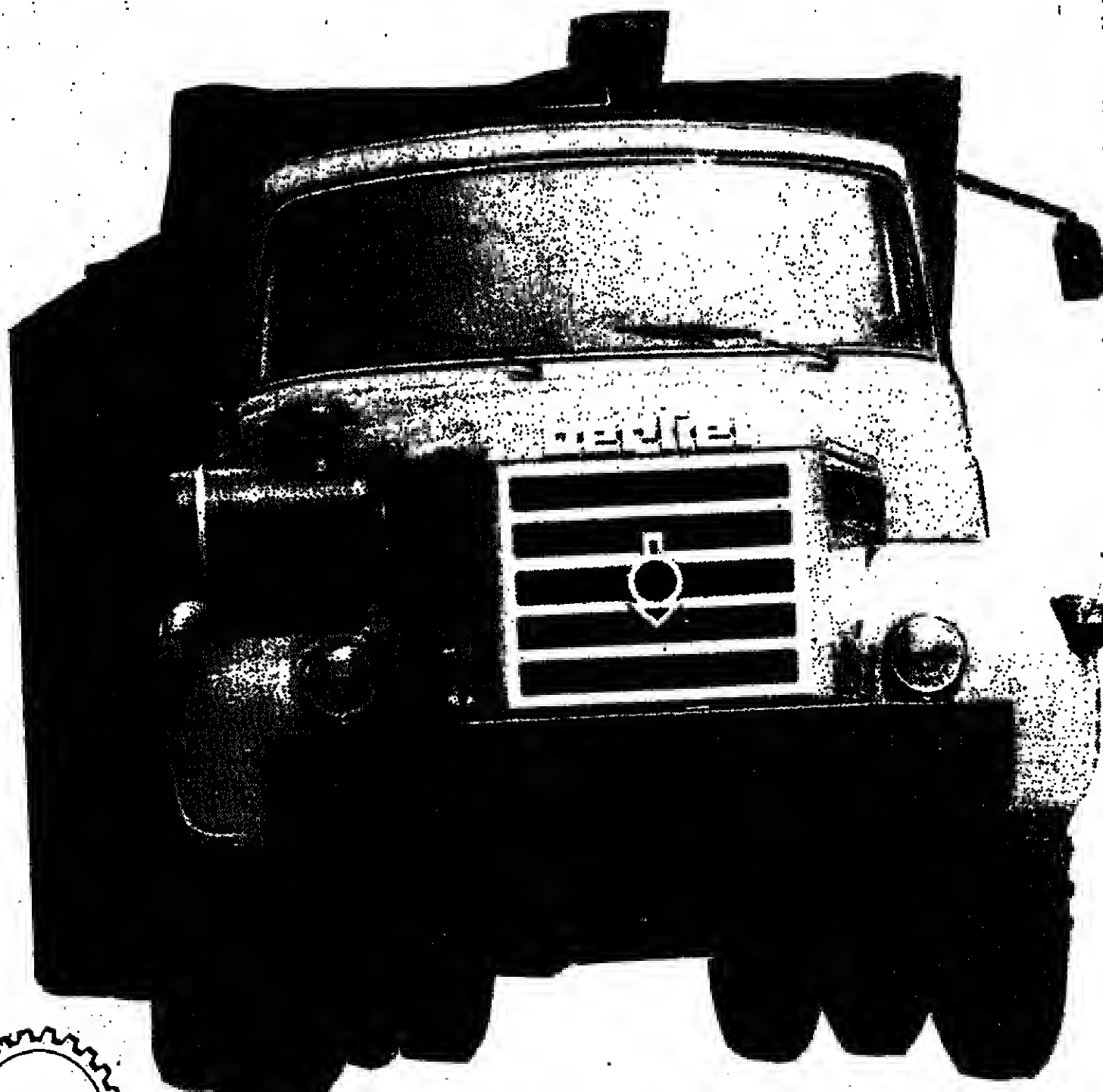
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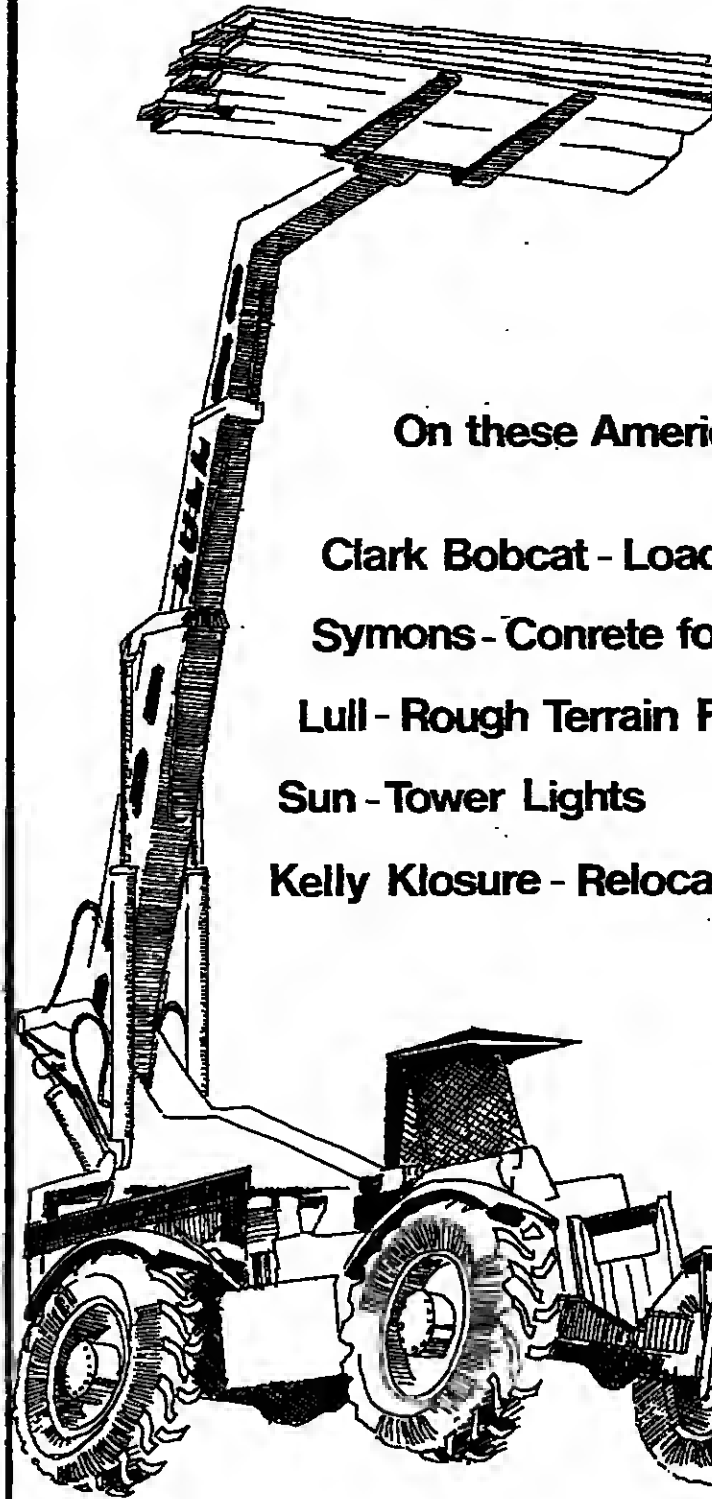
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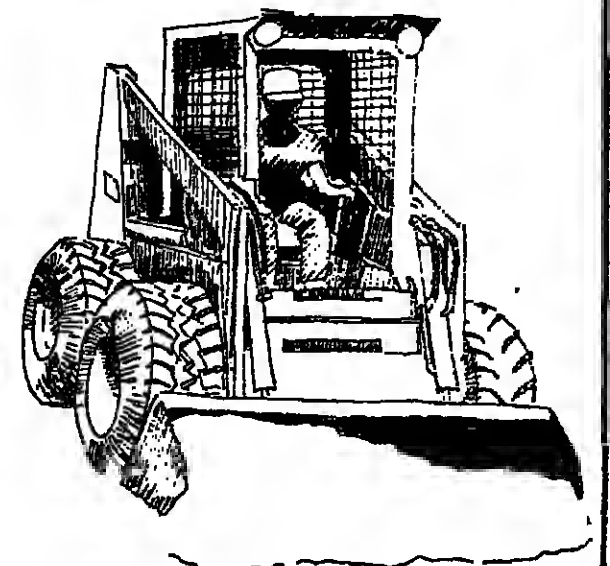
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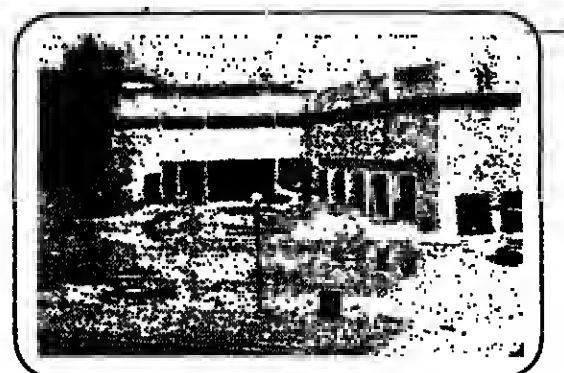
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Hamad Saleh al-Hawas, Jubail Port's director general

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No ship older than 15 years is allowed to enter Saudi ports without a seaworthiness certificate from an accredited international shipping board. "No reputable agency will grant such a certificate to a floating bathtub," says Kurtass. He added that a large proportion of the Jubail Port's administrative staff are longtime town

residents. "So you see, we have a vested interest in maintaining the beauty of our harbors and beaches," he remarked.

The new dual-lane highway to Dammam now under construction will be a boon to port expansion. It will provide easy market access and relieve congestion along the often traffic-clogged route that now follows the coast. "Ports without roads are not ports" stated Kurtass, "and this highway has been given priority."

Most construction currently underway in the Jubail industrial zone is geared to establishing an infrastructure prior to industrial construction proper. Ports for construction materials, desalination for drinking water, workers' housing roads and even rail links are only the first steps in a program begun from scratch.

Chief contractors for the commercial port's dredging operation is the Dutch Adriaan Volker company. The contract for dredging the industrial

port was awarded to the Jubail Harbor consortium (SR 1464 million). Consulting engineers for both the first and second phases of the entire project are the British William Halcrow and Partners.

With completion dates on schedule the Jubail Port Authority can afford to relax. But director general Hawas says that the Authority is now preparing for their administrative move to new 14-story quarters overlooking the commercial harbor.

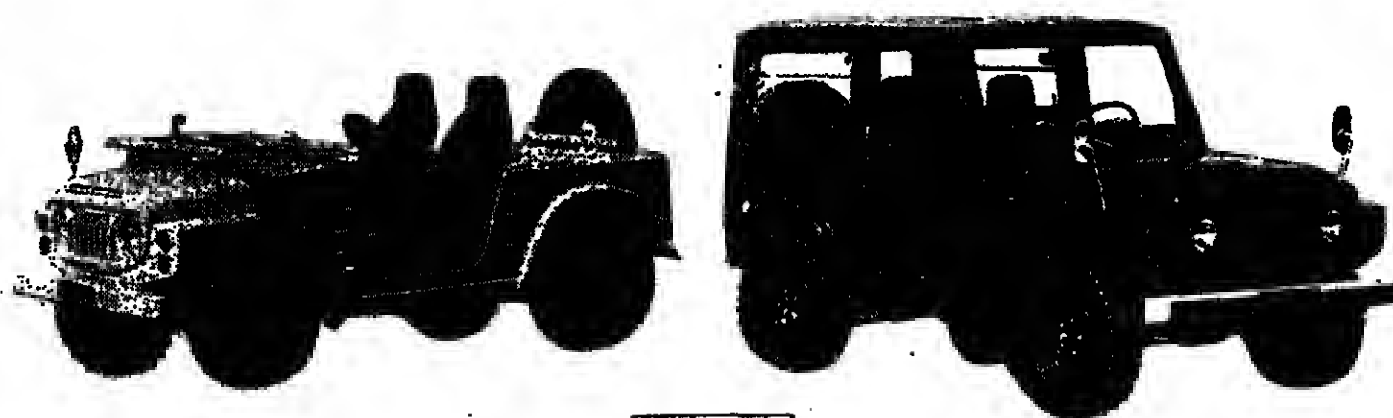
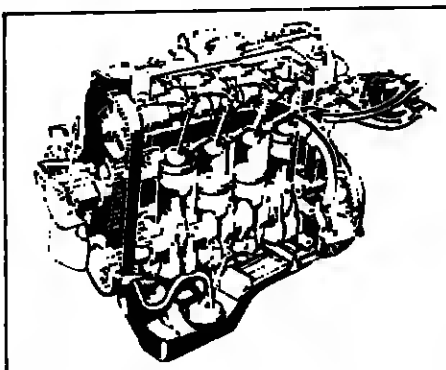


Huge container and cargo warehouses now completed on quay at Jubail's commercial port

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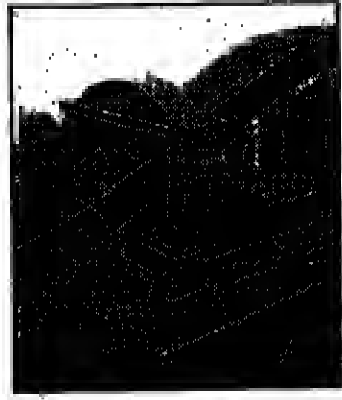


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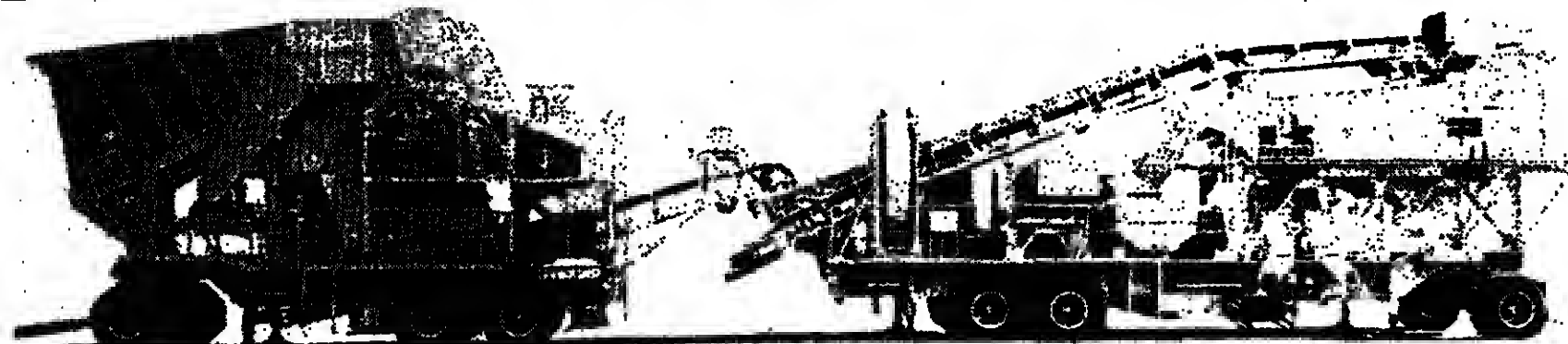
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Providing vital infrastructure

When the second phase of Jubail's new deep water commercial port is completed in March 1979, an important milestone will have been passed.

Under the direction of the Saudi Arabian Ports Authority, Sir William Halcrow and Partners, acting as architects, consulting engineers and co-ordinators, are providing the future industrial city/complex with a vital infrastructural base.

Even though the former fishing village was chosen largely for its proximity to deep water (9 kilometers offshore), the logistics of this port's construction were staggering by any standards.

Before the infrastructure itself — housing, building materials, roads, power and water — could be established, a suitable deep water port had to be constructed from scratch.

Halcrow is reluctant to release figures or even to publicize progress thus far. The fruits of their four-year labor, however, are evident.

Jubail's first port construction phase has transformed the face of this once-serene fishing

village. Dredging, supervised by Adrian Volker Company, is now finished. The old fishing harbor has been reclaimed and a new one built. Five deep and shallow water berths are operational with another four nearly completed. Also finished are breakwaters, transit sheds for perishable goods, guays, associated roadworks, a standby generator substation and various maintenance buildings. Fuel is supplied by the Berri NGL plant, officially commissioned in October, 1977.

W.O. Roberts, a consulting engineer with Halcrow, admits that the relative closeness of deep water at Jubail made the job easier but said that the project is one of the British company's largest in years.

The firm is based in Britain but maintains numerous overseas offices. The 2,000 staff company has undertaken much work in the Middle East, including the Duhai dry dock, port projects in Jeddah, Yanbu and in the southwest as well as related projects in Oman and Muscat.

Outside the Middle East, Hal-

crow has undertaken civil engineering projects in more than 35 countries. The range is impressive and includes the design and construction supervision of bridges, dams, tunnels, highway networks and marine facilities.

Since the first stage of the Jubail commercial and industrial port began in 1975, Halcrow has maintained approximately 70 men on site. The majority of Halcrow's staff is of British origin with the bulk of subcontracted labor being handled by Korean firms. Halcrow's Jubail staff include architects, civil and chemical engineers, inspectors and divers. Like Roberts, who served for three years in South Africa prior to coming here, the majority of the company's staff have wide overseas experience. Estimated cost of the entire port project is approximately SR 6 billion.

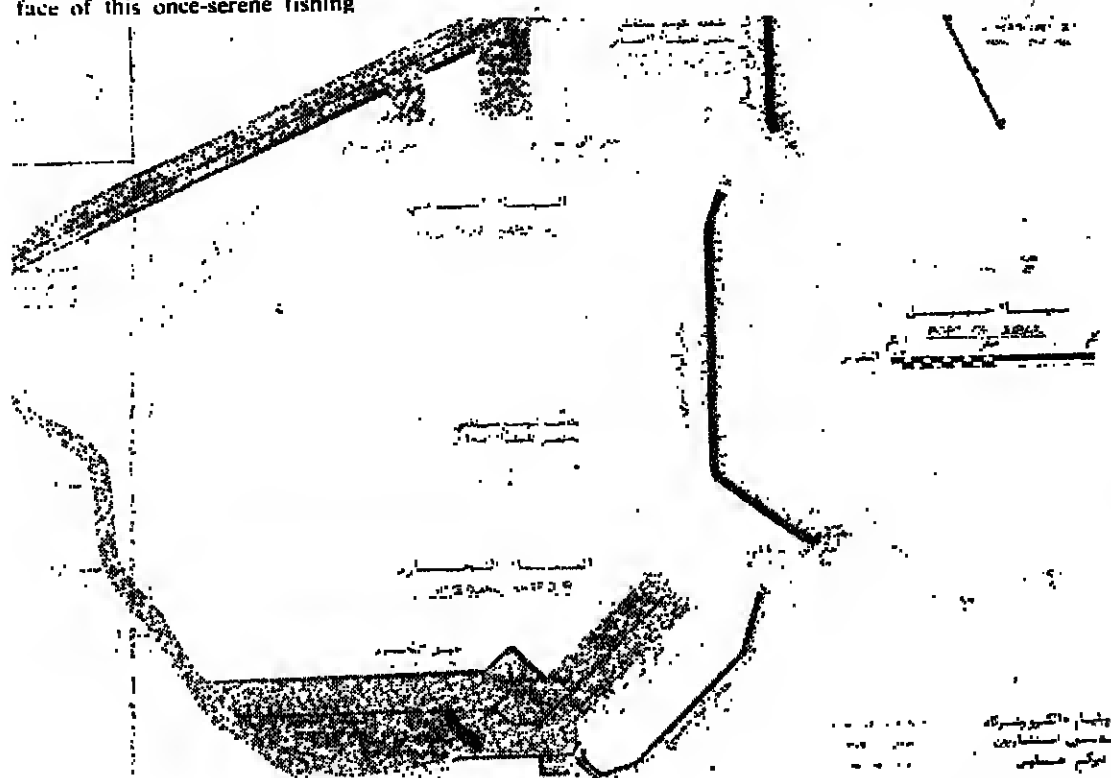
The industrial harbor will handle the bulk of imported cargo for the future hydrocarbon industry as well as the export of finished solid and liquid products. The commercial port is designed to handle general

cargo, by-products from secondary industries at the industrial complex and construction materials. It is also expected to play a major role in relieving traffic at the Dammam port, 80 kilometers south of Jubail.

Roberts, whose contract expires next month, says he has enjoyed the experience here. When asked what changes he saw in Jubail over the past two years, he replied: "Enormous physical changes, but the people are as friendly and courteous as when I arrived." He said that the early Jubail site couldn't be compared to the first Aramco camp 45 years ago, but added: "We certainly had air conditioning and running water, but many Western-type amenities were lacking." For groceries, he and later his family, drove to Al-Khobar every three or four weeks. "Now," he says, "there are more than a half-dozen supermarkets here and new stores springing up every week."

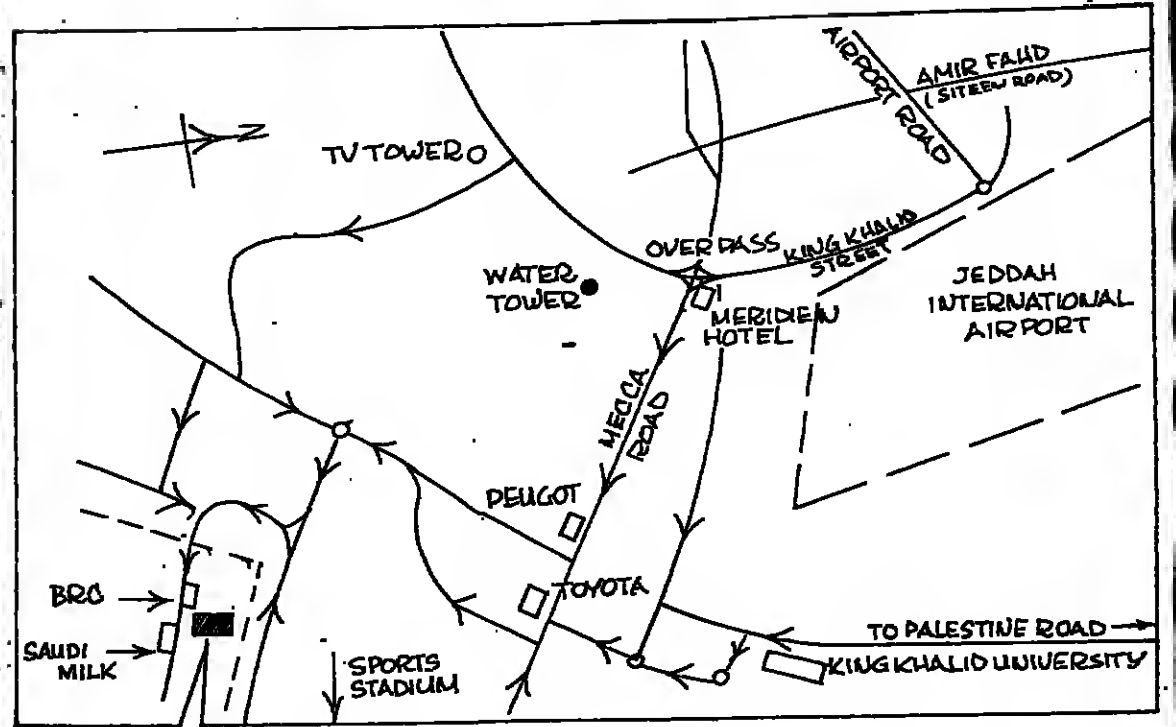
When asked if he thought that the new fishing harbor, proposed quays and wholesale market would rekindle the dying fishing trade, he declined to speculate, but added: "It's no secret that the industry has declined drastically, but there's plenty of fish in the sea and a ready market." It is estimated that as late as 1974, more than 150 boats were operating out of Jubail. Now there are about 60 and only about 10 per cent of the town's Saudi population are dependent upon the sea for their livelihood.

The commercial and industrial harbors are expected to handle an annual five million tons of general cargo, five million in bulk cargo and over 26 million tons of liquid cargo. When completed next year, the industrial port will contain 14 berths — four of these located offshore — while the commercial port will comprise 12 general cargo berths and two container cargo slips. — B.R.



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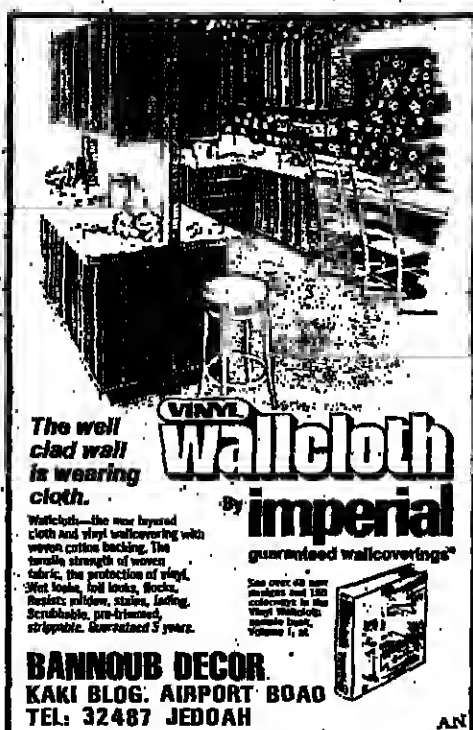
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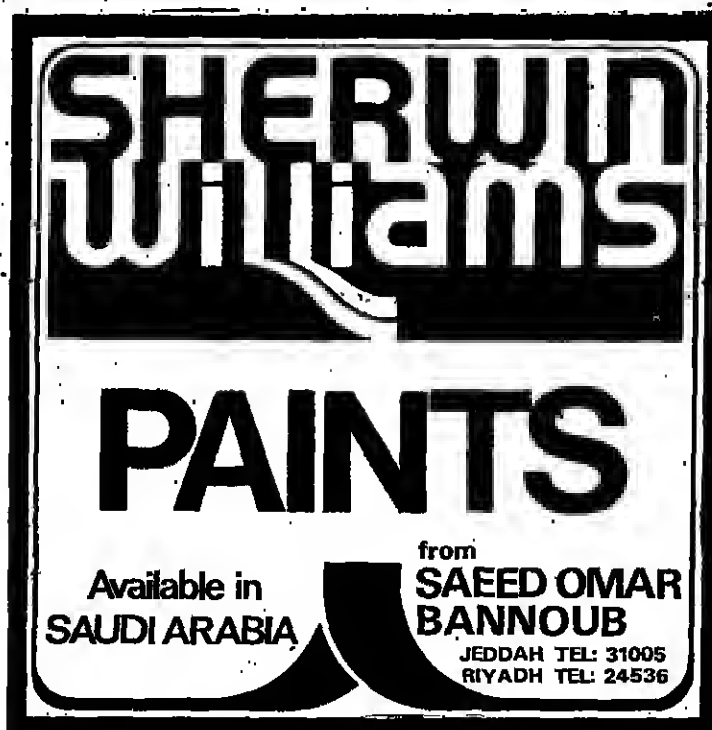
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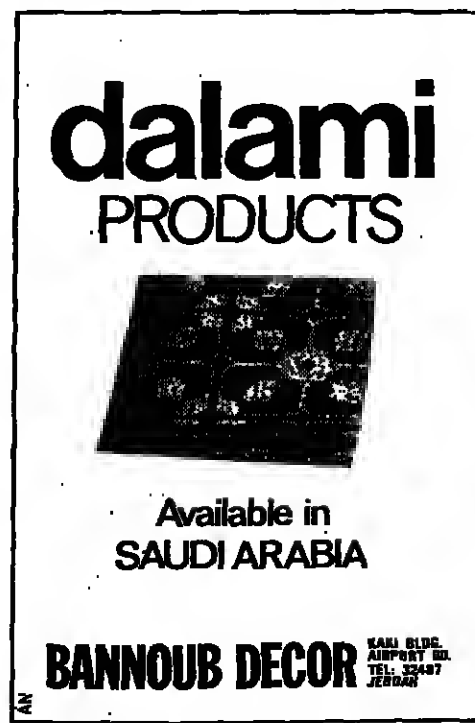
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